

APPENDIX A - ADDITIONAL TABLES

Table A1: Salmon and Steelhead monitoring programs in the Sacramento - San Joaquin and Trinity River basins, and Suisun Marsh.

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
<u>Central Valley</u>	<i>Chinook Salmon, Steelhead</i>	Sacramento River	Scale and otolith collection	Coleman National Hatchery, Sacramento River and tributaries	Scale and otolith microstructure analysis	All year	CDFG
		Sacramento River and San Joaquin River	Central Valley Angler Survey	Sacramento and San Joaquin rivers and tributaries downstream to Carquinez	In-river harvest	8 or 9 times per month, year round	CDFG
		Sacramento River	Rotary screw trapping	Upper Sacramento River at Balls Ferry and Deschutes Road Bridge	Juvenile emigration timing and abundance	Year round	CDFG
		Sacramento River	Rotary screw trapping	Upper Sacramento River at RBDD	Juvenile emigration timing and abundance	Year round	FWS
		Sacramento River	Ladder counts	Upper Sacramento River at RBDD	Escapement estimates, population size	Variable, May - Jul	FWS
		Sacramento River	Beach seining	Sacramento River, Caldwell Park to Delta	Spatial and temporal distribution	Bi-weekly or monthly, year-round	FWS
		Sacramento River	Beach seining, snorkel survey, habitat mapping	Upper Sacramento River from Battle Creek to Caldwell Park	Evaluate rearing habitat	Random, year-round	CDFG
		Sacramento River	Rotary Screw Trap	Lower Sacramento River at Knight's Landing	Juvenile emigration and post-spawner adult steelhead migration	Year-round	CDFG
		Sacramento-San Joaquin basin	Kodiak/Midwater trawling	Sacramento river at Sacramento, Chipps Island, San Joaquin River at Mossdale	Juvenile outmigration	Variable, year-round	FWS
		Sacramento-San Joaquin Delta	Kodiak trawling	Various locations in the Delta	Presence and movement of juvenile salmonids	Daily, Apr - Jun	IEP

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
		Sacramento-San Joaquin Delta	Kodiak trawling	Jersey Point	Mark and recapture studies on juvenile salmonids	Daily, Apr - Jun	Hanson Environmental Consultants
<u>Central Valley</u>	<i>Chinook Salmon, Steelhead, Continued</i>	Sacramento-San Joaquin Delta	Salvage sampling	CVP and SWP south delta pumps	Estimate salvage and loss of juvenile salmonids	Daily	USBR/CDFG
		Battle Creek	Rotary screw trapping	Above and below Coleman Hatchery barrier	Juvenile emigration	Daily, year-round	FWS
		Battle Creek	Weir trap, carcass counts, snorkel/ kayak survey	Battle Creek	Escapement, migration patterns, demographics	Variable, year-round	FWS
		Clear Creek	Rotary screw trapping	Lower Clear Creek	Juvenile emigration	Daily, mid Dec-Jun	FWS
		Feather River	Rotary screw trapping, Beach seining, Snorkel survey	Feather River	Juvenile emigration and rearing, population estimates	Daily, Dec - Jun	DWR
		Yuba River	Rotary screw trap	lower Yuba River	Life history evaluation, juvenile abundance, timing of emergence and migration, health index	Daily, Oct - Jun	CDFG
		Feather River	Ladder at hatchery	Feather River Hatchery	Survival and spawning success of hatchery fish (spring-run Chinook), determine wild vs. hatchery adults (steelhead)	Variable, Apr - Jun	DWR, CDFG
		Mokelumne River	Habitat typing	Lower Mokelumne River between Camanche Dam and Cosumnes River confluence	Habitat use evaluation as part of limiting factors analysis	Various, when river conditions allow	EBMUD

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
		Mokelumne River	Redd surveys	Lower Mokelumne River between Camanche Dam and Hwy 26 bridge	Escapement estimate	Twice monthly, Oct 1- Jan 1	EBMUD
		Mokelumne River	Rotary screw trapping, mark/recapture	Mokelumne River, below Woodbridge Dam	Juvenile emigration and survival	Daily, Dec- Jul	EBMUD
<u>Central Valley</u>	<i>Chinook Salmon, Steelhead, Continued</i>	Mokelumne River	Angler survey	Lower Mokelumne River below Camanche Dam to Lake Lodi	In-river harvest rates	Various, year-round	EBMUD
		Mokelumne River	Beach seining, electrofishing	Lower Mokelumne	Distribution and habitat use	Various locations at various times throughout the year	EBMUD
		Mokelumne River	Video monitoring	Woodbridge Dam	Adult migration timing, population estimates	Daily, Aug - Mar	EBMUD
		Calaveras River	Adult weir, snorkel survey, electrofishing	Lower Calaveras River	Population estimate, migration timing, emigration timing	Variable, year-round	Fishery Foundation
		Stanislaus River	Rotary screw trapping	lower Stanislaus River at Oakdale and Caswell State Park	Juvenile outmigration	Daily, Jan - Jun, dependent on flow	S.P Cramer
		San Joaquin River basin	Fyke nets, snorkel surveys, hook and line survey, beach seining, electrofishing	Stanislaus, Tuolumne, Merced, and mainstem San Joaquin rivers	Presence and distribution, habitat use, and abundance	Variable, Mar- Jul	CDFG
	<i>CV Steelhead</i>	Sacramento River	Angler Survey	RBDD to Redding	In-river harvest	Random Days, Jul 15 - Mar 15	CDFG
		Battle Creek	Hatchery counts	Coleman National Fish Hatchery	Returns to hatchery	Daily, Jul 1 - Mar 31	FWS

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
		Clear Creek	Snorkel survey, redd counts	Clear Creek	Juvenile and spawning adult habitat use	Variable, dependent on river conditions	FWS
		Mill Creek, Antelope Creek, Beegum Creek	Spawning survey - snorkel and foot	Upper Mill, Antelope, and Beegum Creeks	Spawning habitat availability and use	Random days when conditions allow, Feb - Apr	DFG
<u>Central Valley</u>	<i>CV Steelhead</i> continued	Mill Creek, Deer Creek, Antelope Creek	Physical habitat survey	Upper Mill, Deer, and Antelope Creeks	Physical habitat conditions	Variable	USFS
		Dry Creek	Rotary screw trapping	Miner and Secret Ravine's confluence	Downstream movement of emigrating juveniles and post-spawner adults	Daily, Nov- Apr	DFG
		Dry Creek	Habitat survey, snorkel survey, PIT tagging study	Dry Creek, Miner and Secret Ravine's	Habitat availability and use	Variable	DFG
		Battle Creek	Otolith analysis	Coleman Hatchery	Determine anadromy or freshwater residency of fish returning to hatchery	Variable, dependent on return timing	FWS
		Feather River	Hatchery coded wire tagging	Feather River Hatchery	Return rate, straying rate, and survival	Daily, Jul - Apr	DWR
		Feather River	Snorkel survey	Feather River	Escapement estimates	Monthly, Mar to Aug (upper river), once annually (entire river)	DWR
		Yuba River	Adult trap	lower Yuba River	Life history, run composition, origin, age determination	Year-round	Jones and Stokes
		American River	Rotary screw trapping	Lower American River, Watt Ave. Bridge	Juvenile emigration	Daily, Oct- Jun	DFG

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
		American River	Beach seine, snorkel survey, electrofishing	American River, Nimbus Dam to Paradise Beach	Emergence timing, juvenile habitat use, population estimates	Variable	DFG
		American River	Redd surveys	American River, Nimbus Dam to Paradise Beach	Escapement estimates	Once, Feb - Mar	DFG, BOR
		Mokelumne River	Electrofishing, gastric lavage	Lower Mokelumne River	Diet analysis as part of limiting factor analysis	Variable	EBMUD
<u>Central Valley</u>	<i>CV Steelhead</i> continued	Mokelumne River	Electrofishing, hatchery returns	Lower Mokelumne River, Mokelumne River hatchery	<i>O. Mykiss</i> genetic analysis to compare hatchery returning steelhead to residents	Variable	EBMUD
		Calaveras River	Rotary screw trap, pit tagging, beach seining, electrofishing	lower Calaveras River	Population estimate, migration patterns, life history	Variable, year-round	SP Cramer
		San Joaquin River basin	Fyke nets, snorkel survey, hook and line survey, beach seining, electrofishing, fish traps/weirs	Stanislaus, Tuolumne, Merced, and mainstem San Joaquin rivers	Presence, origin, distribution, habitat use, migration timing, and abundance	Variable, Jun - Apr	DFG
		Merced River	Rotary screw trapping	Lower Merced River	Juvenile outmigration	Variable, Jan-Jun	Natural Resource Scientists, Inc.
		Central Valley-wide	Carcass survey, hook and line survey, electrofishing, traps, nets	Upper Sacramento, Yuba, Mokelumne, Calaveras, Tuolumne, Feather, Cosumnes and Stanislaus Rivers, and Mill, Deer, Battle, and Clear Creeks	Occurrence and distribution of <i>O. Mykiss</i>	Variable, year-round	DFG

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
		Central Valley -wide	Scale and otolith sampling	Coleman NFH, Feather, Nimbus, Mokelumne River hatcheries	Stock identification, juvenile residence time, adult age structure, hatchery contribution	Variable upon availability	DFG
		Central Valley -wide	Hatchery marking	All Central Valley Hatcheries	Hatchery contribution	Variable	FWS, DFG
	<i>SR Winter-run Chinook salmon</i>	Sacramento River	Aerial redd counts	Keswick Dam to Princeton	Number and proportion of redds above and below RBDD	Weekly, May 1- July 15	DFG
		Sacramento River	Carcass survey	Keswick Dam to RBDD	In-river spawning escapement	Weekly, Apr 15- Aug 15	FWS, DFG
	<i>SR Winter-run Chinook salmon</i>	Battle Creek	Hatchery marking	Coleman National Fish Hatchery	Hatchery contribution	Variable	FWS, DFG
		Sacramento River	Ladder counts	RBDD	Run-size above RBDD	Daily, Mar 30- Jun 30	FWS
		Pacific Ocean	Ocean Harvest	California ports south of Point Arena	Ocean landings	May 1- Sept 30 (commercial), Feb 15 - Nov 15 (sport)	DFG
	<i>CV Spring-run Chinook salmon</i>	Mill, Deer, Antelope, Cottonwood, Butte, Big Chico Creeks	Rotary screw trapping, snorkel survey, electrofishing, beach seining	upper Mill, Deer, Antelope, Cottonwood, Butte, and Big Chico creeks	Life history assessment, presence, adult escapement estimates	Variable, year-round	DFG
		Feather River	Fyke trapping, angling, radio tagging	Feather River	Adult migration and holding behavior	Variable, Apr-June	DWR
		Yuba River	Fish trap	lower Yuba River, Daguerre Point Dam	Timing and duration of migration, population estimate	Daily, Jan - Dec	DFG
<u>Suisun Marsh</u>	<i>Chinook salmon</i>	Suisun Marsh	Otter trawling, beach seining	Suisun Marsh	Relative population estimates and habitat use	Monthly, year-round	UCDavis

Geographic Region	Species	Watershed	Methods	Geographic Area Covered	Monitoring Parameters	Monitoring Period	Implementing Agency
		Suisun Marsh	Gillnetting	Suisun Marsh Salinity Control Gates	Fish passage	Variable, Jun - Dec	DFG
<u>Trinity River</u>	<i>Chinook and coho salmon</i>	Trinity River	Rotary screw trapping	lower Trinity River	Abundance, emigration timing, life history	Daily, Apr- Aug	FWS
		Trinity River	Adult weir counts	Trinity River at Willow Creek	Migration timing, population estimate	Daily, late Aug- mid-Nov	DFG
		Trinity River	Carcass/spawning survey	Trinity River	Escapement estimate, distribution, pre-spawn mortality, sex composition, wild vs. hatchery fish ratio	Variable, Sept - Dec	DFG

Table A2:

Annual lethal take estimated from section 10 and 4(d) research projects						
	<i>Winter-run Chinook</i>		<i>Spring-run Chinook</i>		<i>CV steelhead</i>	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
Total of 14 IEP Projects*	1	21	1	75	1	17
Total of 13 FWS Projects*	373	598 + 0.09%	547	5,845	262	1,360
Total of 78 4(d) CDFG + SCP Projects	na	na	59	14,261	134	2,020
Permitted section 10 Projects (8 permits)	4	102	12	15,222	15	105
Pending section 10 Projects (10 applications)*	128	451	1	1,182	10	407
Total take from monitoring	506	1,193 + 0.09%	620	36,585	422	3,909
<p>* not officially permitted yet (as of June 2, 2004) Used highest number from FWS take estimates Reported take is often lower than estimated take</p>						

**Table A3:
Historical Chinook salmon salvage numbers from the SWP and CVP export facilities.**

SWP Export Facilities

Year	W/Y	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Sum
1968	BN	0	0	0	0	0	3446	10548	13980	1632	120	60	72	29658
1969	W	300	2772	2556	3420	275	284	14868	24124	3394	212	0	24	52229
1970	W	136	12	277	1093	1574	1189	10831	12764	6220	2100	540	12	36748
1971	W	0	3168	14052	223	1431	5528	3892	6012	776	0	0	0	35082
1972	BN	0	0	312	548	150	4822	13520	43387	19540	0	0	385	82664
1973	AN	1407	8588	5390	1648	667	1814	6534	22334	3917	0	0	0	52299
1974	W	699	1463	3180	907	927	4008	13106	67567	44662	3597	0	1	140087
1975	W	91	4628	2408	1743	1650	4404	5508	15161	663	27	60	402	36646
1976	C	2516	3569	2858	961	1005	10287	3040	13688	1602	114	251	24	39915
1977	C	139	128	642	2224	983	593	68	4522	612	0	0	0	9911
1978	AN	0	269	19068	46621	6668	511	19	3200	12400	632	0	21	88409
1979	BN	37139	653	3736	2399	1187	2304	28993	59790	9533	5647	359	70	151810
1980	AN	1516	5392	5249	5968	383	188	18668	27041	22836	725	725	931	89622
1981	D	966	943	1462	1756	3504	6327	55039	19115	352	0	85	0	89549
1982	W	395	2937	12095	6700	26805	22973	28353	110299	24446	0	0	0	235003
1983	W	0	6086	52757	12509	12758	4796	0	1138	37445	134	0	0	127623
1984	W	0	162	0	0	80	1659	27260	40078	46130	3	575	0	115947
1985	D	10514	8859	9883	121	847	2261	28246	96273	8768	408	0	19	166199
1986	W	719	1099	1952	1639	13422	18900	133773	176557	90240	0	0	0	438301
1987	D	0	153	549	63	405	4316	40804	95002	9783	573	69	83	151800
1988	C	2	16	26764	2943	4235	3905	44736	71008	21463	1781	308	24	177175
1989	D	39	460	1016	2592	170	8319	49525	42859	602	0	122	0	105704
1990	C	38	755	1277	2463	1103	4668	17377	8964	595	75	0	0	37315
1991	C	9	0	42	91	99	4765	19904	12268	680	0	0	0	37858
1992	C	72	1282	9	904	8445	9255	1058	2365	0	0	0	6	23396
1993	AN	0	0	160	1622	956	136	1487	2626	728	8	84	0	7807
1994	C	22	77	901	193	209	283	269	1787	20	0	0	0	3761
1995	W	0	10	707	5048	1389	18	14	3505	8994	184	12	0	19881
1996	W	0	0	0	3013	280	444	2637	6586	1583	14	0	10	14667
1997	W	3	112	46	18	35	1674	6014	2963	635	30	0	9	11539
1998	W	8	4	463	352	108	4	0	1713	1610	120	0	0	4382
1999	W	27	10	12	34	844	1974	23609	23654	468	48	44	42	50756
2000	AN	6	39	59	615	6825	3355	20690	9144	3951	33	15	526	46258
2001	D	227	52	180	263	1220	6422	13223	6747	0	0	0	0	28334
2002	D	0	0	462	1083	272	524	1606	2096	32	0	15	0	6080
2003	AN	0	4	716	0	0	0	0	0	0	0	0	0	720

Table A3: continued

Historical Chinook salmon salvage numbers from the SWP and CVP export facilities.

CVP Export Facilities

Year	WY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Sum
1957	AN	0	0	0	0	0	3288	116684	85407	11600	512	312	192	217995
1958	W	0	0	0	0	0	0	0	0	0	528	48	0	576
1959	BN	0	0	0	0	0	29088	46476	19812	5148	276	84	48	100932
1960	D	0	0	0	0	0	8868	26340	25140	105684	432	48	0	166412
1961	D	0	0	0	0	0	4512	21444	25380	18792	408	72	0	70608
1962	BN	0	0	0	0	0	0	20424	58032	13944	312	48	0	92760
1963	W	0	0	0	0	0	0	0	14040	8196	336	48	60	22680
1964	D	0	0	0	0	372	1776	30144	57936	39864	888	0	108	131088
1965	W	0	0	0	0	0	2052	6864	232616	87072	3264	84	192	332144
1966	BN	12	0	0	0	0	11028	68556	23844	14668	288	84	72	118452
1967	W	96	0	0	0	0	4476	4140	29340	15900	3408	360	24	57744
1968	BN	72	0	0	1236	46657	36768	54312	47256	8584	0	48	1020	197963
1969	W	4008	6228	744	6328	1152	660	12828	36566	7032	504	0	132	76182
1970	W	744	0	0	0	25621	57100	135348	26022	17050	180	0	324	262389
1971	W	276	60	0	0	1200	21504	92700	193116	119156	3466	24	0	431492
1972	BN	144	3360	7464	0	5184	22692	59664	149352	58140	60	12	2880	308952
1973	AN	684	0	0	0	1868	4242	79480	78816	12096	144	0	0	176330
1974	W	34308	11856	1932	0	980	25444	43476	166916	31668	2328	24	36	318968
1975	W	1168	0	0	672	2184	8736	35760	51756	13404	432	122	60	114294
1976	C	252	121	38	0	876	13487	33516	51216	15900	0	216	24	115646
1977	C	216	240	312	2232	1044	204	1920	5448	1800	0	0	0	13416
1978	AN	0	0	108	0	0	360	984	4332	4260	192	0	0	10236
1979	BN	26592	2448	3480	2784	169	1056	62304	40100	5468	0	0	184	144675
1980	AN	0	745	0	0	125	299	93825	60063	7320	1187	0	0	153664
1981	D	316	1328	308	95	0	1709	28907	28975	5468	0	0	0	67096
1982	W	2360	488	6872	2911	5414	13170	6635	95864	68290	295	233	0	202432
1983	W	0	14635	12814	5952	4110	6149	47667	112807	31935	928	0	0	236997
1984	W	2302	469	66	162	0	8461	86803	81617	1904	990	0	0	182764
1985	D	10714	6671	5009	0	7319	4540	46780	59700	1633	103	0	0	142469
1986	W	8053	3898	5060	1810	401293	34136	67614	189070	46166	10257	0	0	767357
1987	D	642	75	966	306	504	718	47962	39077	0	0	0	0	90250
1988	C	0	0	2395	3726	2196	1484	24196	22219	205	57	0	0	56478
1989	D	0	0	302	73	0	6151	13539	20685	2489	0	0	0	43239
1990	C	0	0	0	92	103	71	2085	2940	916	0	0	0	6107
1991	C	0	0	0	0	198	2527	18360	7006	292	0	0	0	28383
1992	C	0	2705	138	510	3907	18002	17349	1893	0	0	0	0	44604
1993	AN	0	0	24	36	360	360	5364	11724	1020	0	0	0	18888
1994	C	12	492	1134	256	2796	1668	4293	888	36	0	0	0	11575
1995	W	12	0	2262	3852	816	684	9390	24516	23620	1044	0	0	66396
1996	W	144	0	132	864	1044	96	19068	15486	3072	0	0	0	39906
1997	W	24	192	72	192	12	16296	19728	13260	3860	12	12	24	53684
1998	W	48	48	341	49512	37752	11002	12552	43872	12816	180	0	0	168123
1999	W	0	84	0	2196	38148	9773	33354	36851	12252	36	36		132730
2000	AN	12	96	132	1212	27472	7296	30024	9946	1872	36	0	204	78202
2001	D	36	48	168	276	1176	2977	21804	2550	516	0	12	0	29563
2002	D	0	0	168	936	204	1839	9274	1766	660	12	12	0	14871
2003	AN	160	155	555	0	0	0	0	0	0	0	0	0	870

**Table A4:
Historical Central Valley steelhead salvage from the SWP and CVP export facilities.**

SWP Export Facilities

Year	WY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Sum
1968	BN	0	0	0	0	0	766	744	348	84	0	0	12	1954
1969	W	0	12	24	36	13	55	9	20	60	0	0	0	229
1970	W	0	24	120	170	13	25	242	0	0	24	0	0	618
1971	W	0	0	48	36	96	394	348	72	0	0	0	0	984
1972	BN	0	12	0	48	60	1813	710	141	0	0	0	0	2794
1973	AN	0	0	105	41	72	46	76	40	259	0	0	0	639
1974	W	0	0	0	0	59	879	141	11	480	0	0	21	1591
1975	W	1	0	0	0	436	2404	1116	229	40	0	0	12	4238
1976	C	8	120	0	62	294	1696	341	96	0	0	0	8	2615
1977	C	8	7	2	6	169	428	123	222	2	1230	0	0	2197
1978	AN	0	5	2268	390	6107	254	86	85	436	0	0	0	9631
1979	BN	0	0	0	15	25	454	1011	969	0	0	0	0	2474
1980	AN	0	20	23	381	835	74	118	210	80	0	0	0	1741
1981	D	33	0	25	119	1509	3088	4902	0	0	0	0	0	9676
1982	W	0	0	309	792	1432	1110	10965	2441	179	0	0	0	17228
1983	W	17	0	0	280	89	0	0	256	0	0	0	0	642
1984	W	0	0	0	0	0	41	357	18	0	0	0	0	416
1985	D	0	0	22	0	325	1221	1165	647	0	0	0	0	3380
1986	W	0	0	0	0	139	54	1328	446	0	0	0	0	1967
1987	D	0	0	1268	0	69	3387	976	446	0	0	0	0	6146
1988	C	0	0	172	88	2403	823	2116	426	25	0	0	0	6063
1989	D	0	0	0	46	499	4767	2105	404	0	0	0	0	7821
1990	C	0	0	0	0	1317	2195	1039	19	0	0	0	0	4670
1991	C	0	0	0	22	23	5799	91	0	0	0	0	0	5935
1992	C	92	499	0	148	5418	3867	201	33	0	0	0	0	10248
1993	AN	0	0	16	1330	8561	792	353	200	0	0	0	0	11252
1994	C	0	0	0	21	107	154	22	61	0	15	0	0	380
1995	W	2	0	4	360	362	78	6	86	117	30	0	0	1045
1996	W	4	0	0	2009	597	190	192	151	7	0	0	0	3150
1997	W	0	17	17	0	9	88	101	23	0	0	0	0	255
1998	W	28	0	30	52	16	0	0	0	6	0	0	0	132
1999	W	39	0	0	13	7	177	587	195	42	6	4	0	1070
2000	AN	6	36	3	721	4405	791	231	27	56	6	0	0	6282
2001	D	3	54	173	387	2932	4468	258	57	0	0	0	0	8332
2002	D	0	0	2	612	537	656	159	22	18	12	0	0	2018

Table A4: continued**Historical Central Valley steelhead salvage from the SWP and CVP export facilities.****CVP Export Facilities**

Year	WY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Sum
1979	BN	0	0	0	492	372	444	1080	0	0	0	0	0	2388
1980	AN	0	0	0	0	0	90	743	126	0	0	0	0	959
1981	D	0	0	252	248	1258	1008	168	267	0	0	0	0	3201
1982	W	0	0	0	0	0	0	0	297	0	0	0	0	297
1983	W	0	0	1980	0	0	0	0	0	0	0	0	0	1980
1984	W	0	14	0	0	0	146	187	70	0	0	0	0	417
1985	D	0	0	0	0	83	134	127	101	0	0	0	0	445
1986	W	0	0	0	26	524	127	505	238	46	46	0	0	1511
1987	D	0	0	0	143	112	718	776	275	0	0	0	0	2024
1988	C	0	0	0	248	0	491	1039	1646	0	0	0	0	3424
1989	D	0	0	139	0	252	5051	3139	1212	0	0	0	0	9793
1990	C	0	0	0	0	1085	2139	786	0	0	0	0	0	4010
1991	C	0	0	0	95	109	4412	1263	98	0	0	0	0	5977
1992	C	0	0	0	4216	1798	2716	342	0	0	0	0	0	9062
1993	AN	0	0	0	0	3480	3060	684	84	24	0	0	0	7332
1994	C	0	0	12	30	676	336	127	36	12	0	0	0	1229
1995	W	0	0	48	12	276	648	228	108	72	0	0	0	1392
1996	W	0	0	0	1008	838	24	264	84	12	0	0	0	2230
1997	W	0	0	24	12	0	168	396	60	36	12	0	0	708
1998	W	0	0	12	300	180	120	36	48	12	168	0	0	876
1999	W	0	12	0	96	324	395	508	161	24	0	0	0	1520
2000	AN	0	24	24	444	1822	396	204	60	0	0	0	0	2974
2001	D	0	12	12	156	2388	1517	468	12	12	0	0	0	4677
2002	D	0	0	0	96	402	847	203	0	24	0	0	0	1572

Note:

CVP historical Central Valley steelhead salvage numbers from 1979 to 2003. Verifiable steelhead identification did not start at until 1979 at the CVP.

**Table A5:
CALSIM II modeling values at the CVP Export Facilities (in cfs).**

	Wet											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D 1641 with b(2) (1997)	4087	4208	4076	3968	3938	3651	2883	2254	2867	4374	4650	4479
Today b(2) (2003)	4081	4211	4091	3963	3888	3661	2928	2254	2894	4376	4650	4479
Today EWA (2003)	4123	4027	3627	3342	3257	3754	2785	2083	2843	4419	4654	4465
Future SDIP (2030)4a	4259	4478	4358	4083	3941	3250	2676	2227	2866	4402	4695	4600
Future EWA(2030) 5a	4274	4267	3882	3492	3346	3937	2949	2074	2871	4354	4694	4684
Above Normal												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D 1641 with b(2) (1997)	3633	3538	3908	4224	4240	3973	2652	1859	2833	4576	4637	4454
Today b(2) (2003)	3667	3551	3953	4219	3989	3901	2652	1767	2807	4578	4638	4455
Today EWA (2003)	3740	3580	3575	3629	3597	4013	2640	1538	2868	4581	4608	4417
Future SDIP (2030)4a	3789	3942	3986	4187	4207	3170	2622	2007	2941	4527	4479	4585
Future EWA(2030) 5a	3733	3813	3696	3657	3661	3648	2609	1551	2941	4539	4460	4585
Below Normal												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D 1641 with b(2) (1997)	3782	3905	4050	4226	3948	3771	2294	1657	2861	4259	4496	4340
Today b(2) (2003)	3741	3900	3976	4225	3955	3552	2213	1637	2862	4089	4495	4342
Today EWA (2003)	3771	3788	3608	3898	3800	3374	2184	1259	2862	4094	4369	4118
Future SDIP (2030)4a	3759	4062	4025	4671	3535	3171	2162	1585	2896	3912	4329	4374
Future EWA(2030) 5a	3803	3943	3686	4078	4028	3188	2154	1293	2849	3860	4247	4219
Dry												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D 1641 with b(2) (1997)	3764	3563	3993	4222	3942	3509	1888	1558	2561	3657	3647	3882
Today b(2) (2003)	3709	3536	3994	4222	3940	3246	1899	1515	2509	3394	3330	3955
Today EWA (2003)	3748	3365	3573	3552	3796	3144	1921	1053	2447	3341	3053	3893
Future SDIP (2030)4a	3826	3461	4186	4357	3725	2986	1962	1517	2280	2887	2851	3872
Future EWA(2030) 5a	3658	3362	3794	3656	4040	3210	1934	1086	2102	2927	2528	3650
Critical												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D 1641 with b(2) (1997)	3479	3049	2824	3208	2920	1759	1034	1244	1220	1087	1425	2775
Today b(2) (2003)	3420	3089	2882	3194	2901	1794	946	1236	1166	1089	1353	2661
Today EWA (2003)	3469	2947	2648	2862	2904	1743	964	889	1093	941	1244	2634
Future SDIP (2030)4a	3456	2723	2862	3460	3073	1974	1081	1062	935	870	1011	2552
Future EWA(2030) 5a	3321	2718	2644	3069	2990	1929	1138	838	1011	967	938	2636
Average												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D 1641 with b(2) (1997)	3800	3736	3838	3994	3786	3399	2231	1774	2542	3718	3859	4066
Today b(2) (2003)	3774	3737	3813	3990	3776	3296	2219	1747	2523	3628	3778	4055
Today EWA (2003)	3818	3606	3455	3463	3460	3273	2181	1436	2495	3608	3672	3981
Future SDIP (2030)4a	3878	3815	3975	4158	3689	2970	2166	1736	2457	3448	3592	4079
Future EWA(2030) 5a	3869	3684	3609	3673	3650	3283	2216	1441	2421	3449	3489	4053

Note:

CALSIM II modeling values for the studies 1 through 3 and studies 4a and 5a at the CVP export facilities. Values are in cubic feet per second (cfs). The CALSIM II modeling runs used data from 72 years of historical hydrological records. Modeling runs are divided into hydrological year types and are an average of those years falling into a particular water year classification.

Table A5: continued
Percentage changes in pumping rates at the CVP Export Facilities.

	Wet											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA(2 v4a)	4.36	6.35	6.51	3.03	(1.22)	(11.23)	(8.58)	(1.23)	(0.60)	0.58	1.00	2.70
today vs future with EWA(3 v5a)	3.65	5.96	7.02	4.50	2.72	4.86	2.33	(0.45)	0.97	(1.47)	0.88	2.91
1997 vs future with EWA(1 v5a)	4.57	1.40	(4.78)	(11.99)	(15.05)	7.82	(1.17)	(8.01)	0.14	(0.45)	0.97	2.35
	Above Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA(2 v4a)	3.32	8.17	0.85	(0.75)	5.46	(18.74)	(1.12)	13.58	4.80	(1.12)	(1.30)	2.93
today vs future with EWA(3 v5a)	(0.20)	6.51	3.39	6.28	7.33	(9.08)	(1.19)	0.80	2.54	(0.93)	(1.28)	3.80
1997 vs future with EWA(1 v5a)	2.78	7.78	(5.43)	(8.70)	(8.95)	(8.17)	(1.64)	(16.61)	3.81	(0.81)	(1.91)	2.94
	Below Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA(2 v4a)	0.49	4.15	1.23	8.18	(10.63)	(10.75)	(2.31)	(3.16)	1.21	(4.33)	(3.69)	0.73
today vs future with EWA(3 v5a)	0.83	1.46	2.16	4.61	6.02	(5.50)	(1.38)	2.67	(0.43)	(5.72)	(2.78)	2.45
1997 vs future with EWA(1 v5a)	0.53	(1.59)	(8.98)	(3.50)	4.68	(15.46)	(5.70)	(21.95)	(0.42)	(9.38)	(5.53)	(2.80)
	Dry											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA(2 v4a)	3.16	(2.13)	4.81	3.19	(5.46)	(7.99)	3.32	0.12	(9.14)	(14.92)	(14.39)	(2.11)
today vs future with EWA(3 v5a)	2.95	(0.08)	6.21	8.56	6.42	2.08	0.67	3.11	(14.09)	(12.39)	(17.18)	(1.10)
1997 vs future with EWA(1 v5a)	2.50	(5.62)	(4.96)	(8.68)	5.17	(8.53)	2.42	(30.33)	(17.92)	(19.95)	(30.67)	(0.82)
	Critical											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA(2 v4a)	1.05	(11.85)	6.73	8.31	5.91	10.05	14.20	(14.07)	(19.78)	(20.15)	(25.33)	(4.11)
today vs future with EWA(3 v5a)	(4.26)	(7.77)	(0.15)	7.26	6.63	10.64	15.67	(5.71)	(7.50)	2.78	(24.62)	0.07
1997 vs future with EWA(1 v5a)	(4.52)	(10.87)	(6.34)	(4.33)	2.40	9.66	10.06	(32.61)	(17.14)	(11.04)	(34.18)	(5.02)
	Average											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA(2 v4a)	2.75	2.06	4.25	4.22	(2.31)	(9.88)	(2.38)	(0.63)	(2.61)	(4.97)	(4.92)	0.60
today vs future with EWA(3 v5a)	1.33	2.15	4.49	6.06	5.48	0.29	1.61	0.35	(2.94)	(4.39)	(4.99)	1.80
1997 vs future with EWA(1 v5a)	1.82	(1.39)	(5.95)	(8.04)	(3.59)	(3.41)	(0.68)	(18.78)	(4.73)	(7.24)	(9.60)	(0.07)

Note:

Percentage changes in the pumping rates between study 4a and 2, and study 5a and studies 1 and 3 at the CVP export facilities. Numbers in parenthesis indicate that the future condition is less than the current baseline condition.

Table A6: Salvage Projections for Winter-run Chinook Salmon

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1993														
Salvage Number			516	1470	1125	344	83	0	0				3538	AN
todayvs future no EWA(2 v 4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
todayvs future with EWA(3 v 5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA(1 v 5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Salvage													Sum of Change	% Change
todayvs future no EWA(2 v 4a)			(28)	(39)	48	9	3	0	0				(7)	(0)
todayvs future with EWA(3 v 5a)			(6)	11	33	12	1	0	0				51	1
1997 vs future with EWA(1 v 5a)			(31)	(124)	(49)	32	(14)	0	0				(186)	(5)
1994														
Salvage Number			238	215	2941	1625	432	6	0				5467	C
todayvs future no EWA(2 v 4a)	(1)	(3)	2	2	8	8	7	(7)	(7)	(12)	(8)	(7)		
todayvs future with EWA(3 v 5a)	(1)	(7)	(0)	6	1	8	8	(5)	3	3	(18)	(3)		
1997 vs future with EWA(1 v 5a)	3	(8)	(3)	(6)	5	5	1	(35)	8	52	37	(3)		
Change in Salmon Salvage													Sum of Change	% Change
todayvs future no EWA(2 v 4a)			5	5	222	130	30	(0)	0				391	7
todayvs future with EWA(3 v 5a)			(1)	12	24	132	34	(0)	0				200	4
1997 vs future with EWA(1 v 5a)			(7)	(12)	136	89	4	(2)	0				207	4
1995														
Salvage Number			36	4082	268	34	384	16	0				4820	W
todayvs future no EWA(2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
todayvs future with EWA(3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
todayvs future no EWA(2 v 4a)			2	189	12	3	7	0	0				214	4
todayvs future with EWA(3 v 5a)			3	215	11	2	15	1	0				248	5
1997 vs future with EWA(1 v 5a)			(1)	(120)	(10)	7	(46)	(6)	0				(172)	(4)
1996														
Salvage Number			36	3281	386	73	40	12	0				3828	W
todayvs future no EWA(2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
todayvs future with EWA(3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
todayvs future no EWA(2 v 4a)			2	152	18	6	1	0	0				179	5
todayvs future with EWA(3 v 5a)			3	173	16	3	2	1	0				198	5
1997 vs future with EWA(1 v 5a)			(1)	(96)	(14)	16	(5)	(4)	0				(103)	(3)
1997														
Salvage Number			520	1	0	337	23	0	0				881	W
todayvs future no EWA(2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
todayvs future with EWA(3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
todayvs future no EWA(2 v 4a)			33	0	0	28	0	0	0				62	7
todayvs future with EWA(3 v 5a)			37	0	0	15	1	0	0				53	6
1997 vs future with EWA(1 v 5a)			(7)	(0)	0	73	(3)	0	0				63	7

Table A6: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1998														
Salvage Number			4	400	108	196	12	0	0				720	W
today vs future no EWA (2 v4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v4a)			0	19	5	16	0	0	0				40	6
today vs future with EWA (3 v5a)			0	21	5	9	0	0	0				35	5
1997 vs future with EWA (1 v5a)			(0)	(12)	(4)	42	(1)	0	0				25	3
1999														
Salvage Number			48	56	85	1108	435	0	0				1732	W
today vs future no EWA (2 v4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v4a)			3	3	4	91	8	0	0				109	6
today vs future with EWA (3 v5a)			3	3	4	51	17	0	0				78	5
1997 vs future with EWA (1 v5a)			(1)	(2)	(3)	239	(51)	0	0				183	11
2000														
Salvage Number			128	975	1143	590	166	0	0				3002	AN
today vs future no EWA (2 v4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA (3 v5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA (1 v5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v4a)			(7)	(26)	48	16	7	0	0				38	1
today vs future with EWA (3 v5a)			(1)	7	33	21	3	0	0				62	2
1997 vs future with EWA (1 v5a)			(8)	(62)	(50)	55	(28)	0	0				(113)	(4)
2001														
Salvage Number			504	509	2261	3861	138	0	0				7273	D
today vs future no EWA (2 v4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA (3 v5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA (1 v5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v4a)			15	13	(37)	(56)	5	0	0				(60)	(1)
today vs future with EWA (3 v5a)			26	29	62	98	2	0	0				217	3
1997 vs future with EWA (1 v5a)			(11)	(35)	56	(86)	(11)	0	0				(87)	(1)
2002														
Salvage Number			850	1623	379	1057	138	0	0				4047	D
today vs future no EWA (2 v4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA (3 v5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA (1 v5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v4a)			26	43	(6)	(15)	5	0	0				51	1
today vs future with EWA (3 v5a)			44	92	10	27	2	0	0				175	4
1997 vs future with EWA (1 v5a)			(18)	(110)	9	(24)	(11)	0	0				(153)	(4)
2003														
Salvage Number			210	6830	1120	1128	64	24	12				9388	AN
today vs future no EWA (2 v4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA (3 v5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA (1 v5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v4a)			(12)	(182)	48	30	3	1	0				(112)	(1)
today vs future with EWA (3 v5a)			(2)	49	32	40	1	(1)	0				119	1
1997 vs future with EWA (1 v5a)			(12)	(578)	(49)	105	(11)	(9)	(0)				(555)	(6)

Table A6: Note

This table presents the combined salvage numbers for winter-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the salvage numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in salvage numbers.

Table A7: Loss Projections for Winter-run Chinook Salmon

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1993														
Loss Number			1707	6225	3802	580	185	0	0				12499	AN
today vs future no EWA(2 v 4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA(3 v 5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA(1 v 5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Loss													Sum of Change	% Change
today vs future no EWA(2 v 4a)			(94)	(166)	161	16	7	0	0	0	0	0	(76)	(1)
today vs future with EWA(3 v 5a)			(20)	46	110	20	3	0	0	0	0	0	159	1
1997 vs future with EWA(1 v 5a)			(101)	(527)	(165)	54	(31)	0	0	0	0	0	(771)	(6)
1994														
Loss Number			792	490	2480	2155	399	33					6329	C
today vs future no EWA(2 v 4a)	(1)	(3)	2	2	8	8	7	(7)	(7)	(12)	(6)	(7)		
today vs future with EWA(3 v 5a)	(1)	(7)	(0)	6	1	8	8	(5)	3	3	(18)	(3)		
1997 vs future with EWA(1 v 5a)	3	(8)	(3)	(6)	5	5	1	(36)	8	52	37	(3)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v 4a)			18	11	185	172	28	(2)	0	0	0	0	412	7
today vs future with EWA(3 v 5a)			(4)	28	20	175	31	(1)	0	0	0	0	249	4
1997 vs future with EWA(1 v 5a)			(22)	(28)	113	118	4	(12)	0	0	0	0	173	3
1995														
Loss Number			23	12797	737	64	291	28					13942	W
today vs future no EWA(2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v 4a)			1	593	33	5	5	0	0	0	0	0	639	5
today vs future with EWA(3 v 5a)			2	676	31	3	12	2	0	0	0	0	725	5
1997 vs future with EWA(1 v 5a)			(0)	(375)	(27)	14	(34)	(8)	0	0	0	0	(431)	(3)
1996														
Loss Number			116	11862	1039	330	48	8					13403	W
today vs future no EWA(2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v 4a)			7	549	47	27	1	0	0	0	0	0	632	5
today vs future with EWA(3 v 5a)			8	626	44	15	2	1	0	0	0	0	696	5
1997 vs future with EWA(1 v 5a)			(2)	(348)	(38)	71	(6)	(2)	0	0	0	0	(324)	(2)
1997														
Loss Number			1638	4	0	407	107						2156	W
today vs future no EWA(2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v 4a)			105	0	0	34	7	0	0	0	0	0	146	7
today vs future with EWA(3 v 5a)			115	0	0	19	16	0	0	0	0	0	151	7
1997 vs future with EWA(1 v 5a)			(23)	(0)	(0)	88	(47)	0	0	0	0	0	17	1

Table A7: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1998														
Loss Number			19	1009	77	180	9						1293	W
today vs future no EWA(2 v4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)			1	47	3	15	0	0	0	0	0	0	66	5
today vs future with EWA(3 v5a)			1	53	3	8	0	0	0	0	0	0	66	5
1997 vs future with EWA(1 v5a)			(0)	(30)	(3)	39	(1)	0	0	0	0	0	5	0
1999														
Loss Number			31	68	59	2483	1544						4185	W
today vs future no EWA(2 v4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)			2	3	3	205	28	0	0	0	0	0	241	6
today vs future with EWA(3 v5a)			2	4	2	114	62	0	0	0	0	0	194	4
1997 vs future with EWA(1 v5a)			(0)	(2)	(2)	536	(180)	0	0	0	0	0	352	8
2000														
Loss Number			394	2608	3829	1590	248						8659	AN
today vs future no EWA(2 v4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA(3 v5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA(1 v5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)			(21)	(70)	162	43	10	0	0	0	0	0	124	1
today vs future with EWA(3 v5a)			(4)	19	111	56	4	0	0	0	0	0	195	2
1997 vs future with EWA(1 v5a)			(23)	(221)	(167)	148	(42)	0	0	0	0	0	(304)	(4)
2001														
Loss Number			1688	1297	6013	15403	258						24660	D
today vs future no EWA(2 v4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA(3 v5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA(1 v5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)			51	34	(99)	(225)	9	0	0	0	0	0	(230)	(1)
today vs future with EWA(3 v5a)			88	73	165	391	4	0	0	0	0	0	721	3
1997 vs future with EWA(1 v5a)			(36)	(88)	148	(344)	(20)	0	0	0	0	0	(340)	(1)
2002														
Loss Number			2500	4835	1222	2056	265						10877	D
today vs future no EWA(2 v4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA(3 v5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA(1 v5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)			75	127	(20)	(30)	9	0	0	0	0	0	161	1
today vs future with EWA(3 v5a)			130	274	34	52	4	0	0	0	0	0	493	5
1997 vs future with EWA(1 v5a)			(54)	(328)	30	(46)	(21)	0	0	0	0	0	(418)	(4)
2003														
Loss Number			513	20442	3287	3108	198	23	8				27578	AN
today vs future no EWA(2 v4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA(3 v5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA(1 v5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)			(28)	(545)	139	84	8	1	0	0	0	0	(341)	(1)
today vs future with EWA(3 v5a)			(6)	148	95	109	3	(1)	0	0	0	0	348	1
1997 vs future with EWA(1 v5a)			(30)	(1729)	(143)	289	(34)	(9)	(0)	0	0	0	(1656)	(6)

Table A7: Note

This table presents the combined loss numbers for winter-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the salvage numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in salvage numbers.

Table A8: Salvage Projections for Spring-run Chinook Salmon

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	August	Sept	Grand Total	year type
1993														
Salvage Number	0	0	0	0	0	68	3308	4337	28	0	0	0	7741	AN
today vs future no EWA (2 v 4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA (3 v 5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA (1 v 5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)			0	0	0	2	130	252	0	0	0	0	394	5
today vs future with EWA (3 v 5a)			0	0	0	2	56	(154)	0	0	0	0	(96)	(1)
1997 vs future with EWA (1 v 5a)			0	0	0	6	(561)	(1691)	(1)	0	0	0	(2247)	(29)
1994														
Salvage Number	0	0	0	0	0	230	3394	569	0	0	0	0	4193	C
today vs future no EWA (2 v 4a)	(1)	(3)	2	2	8	8	7	(7)	(7)	(12)	(8)	(7)		
today vs future with EWA (3 v 5a)	(1)	(7)	(0)	6	1	8	8	(5)	3	3	(18)	(3)		
1997 vs future with EWA (1 v 5a)	3	(8)	(3)	(6)	5	5	1	(35)	8	52	37	(3)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)			0	0	0	18	239	(37)	0	0	0	0	220	5
today vs future with EWA (3 v 5a)			0	0	0	19	264	(26)	0	0	0	0	257	6
1997 vs future with EWA (1 v 5a)			0	0	0	13	31	(199)	0	0	0	0	(155)	(4)
1995														
Salvage Number	0	0	0	0	16	336	6948	14415	7463	0	0	0	29068	W
today vs future no EWA (2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)					1	28	126	208	(125)	0	0	0	237	1
today vs future with EWA (3 v 5a)					1	15	275	1170	209	0	0	0	1669	6
1997 vs future with EWA (1 v 5a)					(1)	73	(797)	(4284)	(236)	0	0	0	(5245)	(18)
1996														
Salvage Number		0	0	0	28	431	20144	7766	301	0	0	0	28670	W
today vs future no EWA (2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)			0	0	1	36	371	112	(5)	0	0	0	514	2
today vs future with EWA (3 v 5a)			0	0	1	20	808	630	8	0	0	0	1467	5
1997 vs future with EWA (1 v 5a)			0	0	(1)	93	(2344)	(2308)	(10)	0	0	0	(4670)	(16)
1997														
Salvage Number	8	0	0	0	21	17015	24557	1589	36	0	0	0	43226	W
today vs future no EWA (2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	0	1	1404	452	23	(1)	0	0	0	1880	4
today vs future with EWA (3 v 5a)	0	0	0	0	1	783	984	129	1	0	0	0	1898	4
1997 vs future with EWA (1 v 5a)	1	0	0	0	(1)	3673	(2858)	(472)	(1)	0	0	0	342	1

Table A8: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	August	Sept	Grand Total	year type
1998														
Salvage Number	0	0	0	0	12	7288	10508	16207	564	0	0	0	34579	W
today vs future no EWA (2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	0	1	602	193	234	(9)	0	0	0	1020	3
today vs future with EWA (3 v 5a)	0	0	0	0	1	335	421	1315	16	0	0	0	2088	6
1997 vs future with EWA (1 v 5a)	0	0	0	0	(0)	1573	(1223)	(4816)	(18)	0	0	0	(4484)	(13)
1999														
Salvage Number	0	0	0	0	74	3177	40469	12087	24	0	0	0	55831	W
today vs future no EWA (2 v 4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA (3 v 5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA (1 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	0	3	262	744	175	(0)	0	0	0	1184	2
today vs future with EWA (3 v 5a)	0	0	0	0	3	146	1622	981	1	0	0	0	2753	5
1997 vs future with EWA (1 v 5a)	0	0	0	0	(3)	686	(4710)	(3592)	(1)	0	0	0	(7619)	(14)
2000														
Salvage Number	0	0	0	0	136	3082	39347	2156	18	0	0	6	44745	AN
today vs future no EWA (2 v 4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA (3 v 5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA (1 v 5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	0	6	83	1550	125	0	0	0	0	1765	4
today vs future with EWA (3 v 5a)	0	0	0	0	4	108	659	(76)	0	0	0	0	695	2
1997 vs future with EWA (1 v 5a)	0	0	0	0	(6)	287	(6679)	(840)	(1)	0	0	(0)	(7239)	(16)
2001														
Salvage Number	0	0	0	0	0	2696	14128	1380	0	0	0	0	18204	D
today vs future no EWA (2 v 4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA (3 v 5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA (1 v 5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	0	0	(39)	501	(35)	0	0	0	0	426	2
today vs future with EWA (3 v 5a)	0	0	0	0	0	68	195	56	0	0	0	0	319	2
1997 vs future with EWA (1 v 5a)	0	0	0	0	0	(80)	(1112)	(545)	0	0	0	0	(1717)	(9)
2002														
Salvage Number				36	12	1121	9043	695	24	0	0		10931	D
today vs future no EWA (2 v 4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA (3 v 5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA (1 v 5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	1	(0)	(16)	320	(18)	(2)	0	0	0	286	3
today vs future with EWA (3 v 5a)	0	0	0	2	0	28	125	28	(2)	0	0	0	182	2
1997 vs future with EWA (1 v 5a)	0	0	0	(2)	0	(25)	(712)	(275)	(3)	0	0	0	(1017)	(9)
2003														
Salvage Number	0	0	0	42	24	5208	10382	914	0	0	0	0	16570	AN
today vs future no EWA (2 v 4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA (3 v 5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA (1 v 5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Salvage													Sum of Change	% Change
today vs future no EWA (2 v 4a)	0	0	0	(1)	1	141	409	53	0	0	0	0	603	4
today vs future with EWA (3 v 5a)	0	0	0	0	1	182	174	(32)	0	0	0	0	325	2
1997 vs future with EWA (1 v 5a)	0	0	0	(4)	(1)	485	(1782)	(366)	0	0	0	0	(1638)	(10)

Table A8: Note

This table presents the combined salvage numbers for spring-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the salvage numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in salvage numbers.

Table A9: Loss Projections for Spring-run Chinook Salmon

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1993	0	0	0			103	5618	7538	40				13299	AN
Loss Number	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future no EWA (2 v 4a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
today vs future with EWA (3 v 5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
1997 vs future with EWA (1 v 5a)														
													Sum of Change	% Change
Change in Salmon Loss			0	0	0	3	221	438	0	0	0	0	662	5
today vs future no EWA (2 v 4a)			0	0	0	4	94	(267)	0	0	0	0	(169)	(1)
today vs future with EWA (3 v 5a)			0	0	0	10	(954)	(2939)	(1)	0	0	0	(3894)	(29)
1997 vs future with EWA (1 v 5a)														
1994	0	0				201	3407	1140					4748	C
Loss Number	(1)	(3)	2	2	8	8	7	(7)	(7)	(12)	(8)	(7)		
today vs future no EWA (2 v 4a)	(1)	(7)	(0)	6	1	8	8	(5)	3	3	(18)	(3)		
today vs future with EWA (3 v 5a)	3	(8)	(3)	(6)	5	5	1	(35)	8	52	37	(3)		
1997 vs future with EWA (1 v 5a)														
													Sum of Change	
Change in Salmon Loss			0	0	0	16	240	(75)	0	0	0	0	181	4
today vs future no EWA (2 v 4a)			0	0	0	16	265	(52)	0	0	0	0	230	5
today vs future with EWA (3 v 5a)			0	0	0	11	31	(398)	0	0	0	0	(356)	(7)
1997 vs future with EWA (1 v 5a)														
1995	0				24	237	4909	18599	15092				38862	W
Loss Number	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future no EWA (2 v 4a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
today vs future with EWA (3 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
1997 vs future with EWA (1 v 5a)														
													Sum of Change	
Change in Salmon Loss			0	0	1	20	90	269	(254)	0	0	0	126	0
today vs future no EWA (2 v 4a)			0	0	1	11	197	1509	423	0	0	0	2141	6
today vs future with EWA (3 v 5a)			0	0	(1)	51	(571)	(5527)	(478)	0	0	0	(6526)	(17)
1997 vs future with EWA (1 v 5a)														
1996		0	0	0	30	1555	22536	14113	747				38981	W
Loss Number	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future no EWA (2 v 4a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
today vs future with EWA (3 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
1997 vs future with EWA (1 v 5a)														
													Sum of Change	
Change in Salmon Loss			0	0	1	128	415	204	(13)	0	0	0	735	2
today vs future no EWA (2 v 4a)			0	0	1	72	903	1145	21	0	0	0	2142	5
today vs future with EWA (3 v 5a)			0	0	(1)	336	(2623)	(4194)	(24)	0	0	0	(6506)	(17)
1997 vs future with EWA (1 v 5a)														
1997	39	0	0	0	45	15226	36773	3191	23	0	0	0	55299	W
Loss Number	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future no EWA (2 v 4a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
today vs future with EWA (3 v 5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
1997 vs future with EWA (1 v 5a)														
													Sum of Change	
Change in Salmon Loss	2	0	0	0	2	1257	676	46	(0)	0	0	0	1982	4
today vs future no EWA (2 v 4a)	1	0	0	0	2	700	1474	259	1	0	0	0	2437	4
today vs future with EWA (3 v 5a)	3	0	0	0	(2)	3287	(4279)	(948)	(1)	0	0	0	(1940)	(4)
1997 vs future with EWA (1 v 5a)														

Table A9: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1998														
Loss Number	0	0	0	0	8	4800	8110	14219	1092				28230	W
today vs future no EWA(2 v4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)	0	0	0	0	0	396	149	205	(18)	0	0	0	733	3
today vs future with EWA(3 v5a)	0	0	0	0	0	221	325	1154	31	0	0	0	1731	6
1997 vs future with EWA(1 v5a)	0	0	0	0	(0)	1036	(944)	(4226)	(35)	0	0	0	(4168)	(15)
1999														
Loss Number	0	0	0		94	3195	92273	32692	18				128173	W
today vs future no EWA(2 v4a)	4	4	6	5	5	8	2	1	(2)	2	(5)	(0)		
today vs future with EWA(3 v5a)	3	2	7	5	4	5	4	8	3	2	(5)	(3)		
1997 vs future with EWA(1 v5a)	8	2	(1)	(3)	(4)	22	(12)	(30)	(3)	0	(2)	(0)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)	0	0	0	0	4	264	1697	471	(0)	0	0	0	2435	2
today vs future with EWA(3 v5a)	0	0	0	0	4	147	3699	2645	1	0	0	0	6496	5
1997 vs future with EWA(1 v5a)	0	0	0	0	(3)	690	(10738)	(9686)	(1)	0	0	0	(19739)	(15)
2000														
Loss Number	0	0	0		264	7293	84002	7132	84			26	98901	AN
today vs future no EWA(2 v4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA(3 v5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA(1 v5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)	0	0	0	0	11	197	3310	414	1	0	0	0	3933	4
today vs future with EWA(3 v5a)	0	0	0	0	8	255	1408	(253)	0	0	0	0	1419	1
1997 vs future with EWA(1 v5a)	0	0	0	0	(11)	679	(14258)	(2780)	(3)	0	0	(0)	(16375)	(17)
2001														
Loss Number	0	0	0			7435	28756	5204	0				41394	D
today vs future no EWA(2 v4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA(3 v5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA(1 v5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)	0	0	0	0	0	(108)	1019	(132)	0	0	0	0	779	2
today vs future with EWA(3 v5a)	0	0	0	0	0	189	397	210	0	0	0	0	795	2
1997 vs future with EWA(1 v5a)	0	0	0	0	0	(166)	(2263)	(2057)	0	0	0	0	(4486)	(11)
2002														
Loss Number				21	8	1245	10825	2463	18				14579	D
today vs future no EWA(2 v4a)	(0)	(2)	3	3	(2)	(1)	4	(3)	(7)	(3)	(5)	(4)		
today vs future with EWA(3 v5a)	(1)	1	5	6	3	3	1	4	(8)	(4)	(8)	(7)		
1997 vs future with EWA(1 v5a)	2	(5)	(2)	(7)	2	(2)	(8)	(40)	(14)	6	(10)	(3)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)	0	0	0	1	(0)	(18)	384	(62)	(1)	0	0	0	302	2
today vs future with EWA(3 v5a)	0	0	0	1	0	32	149	99	(1)	0	0	0	280	2
1997 vs future with EWA(1 v5a)	0	0	0	(1)	0	(28)	(852)	(974)	(2)	0	0	0	(1857)	(13)
2003														
Loss Number	0	0	0	46	57	12257	27971	2573					42903	AN
today vs future no EWA(2 v4a)	5	2	(6)	(3)	4	3	4	6	1	0	7	1		
today vs future with EWA(3 v5a)	5	2	(1)	1	3	4	2	(4)	0	(0)	0	1		
1997 vs future with EWA(1 v5a)	7	0	(6)	(8)	(4)	9	(17)	(39)	(3)	7	15	(2)		
Change in Salmon Loss													Sum of Change	
today vs future no EWA(2 v4a)	0	0	0	(1)	2	331	1102	150	0	0	0	0	1584	4
today vs future with EWA(3 v5a)	0	0	0	0	2	429	469	(91)	0	0	0	0	809	2
1997 vs future with EWA(1 v5a)	0	0	0	(4)	(2)	1141	(4748)	(1003)	0	0	0	0	(4617)	(11)

Table A9: Note

This table presents the combined loss numbers for spring-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the loss numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in loss numbers.

Table A10: Simple Through-Delta Loss Model

This simple model is based on the projected loss of fish entrained at the south Delta export facilities. It includes losses due to pre-screen mortality, trucking and handling, and screening efficiency (top table). The number of fish that arrive at the facilities to support the number of fish counted in the expanded count (e.g.10,000 fish) is then further expanded by the two survival factors, 5% survival and 66% survival, (Low and High). This expanded number is the projected number of fish that would have to arrive at the northern Delta to support the 10,000 fish salvaged in the expanded salvage count.

Direct Loss Calculation in the south Delta - 2002/2003									
	CVP - TFPF (USBR)				SWP - JES Delta FPF (DWR)				GRAND
	Unmarked	Marked	Loss	Loss	Unmarked	Marked	Loss	Loss	TOTAL
			Unmarked	Marked			Unmarked	Marked	LOSS
Count									
Count Duration									
Count Interval									
Expanded Count	10000	0			10000	0			
Screen Loss	0.250		3333	0	0.250		3333	0	6667
Arrive at Screens	13333	0			13333	0			
Pre Screen Loss	0.150		2353	0	0.750		40000	0	42353
Arrive at Facility	15686	0			53333	0			
CHT&R Loss	0.020		200	0	0.020		200	0	400
Released A live	9800	0			9800	0			
Loss Total			5886	0			43533	0	48420
Loss (OCA P Incidental Take)				5886				43533	48420
Salvage				10000				10000	20000
Take (Arrive at the Facilities)				15686				53333	69020

Through Delta			Number Entering Central Delta		Total
Survival Level	% Survival		CVP	SWP	
Low	0.05		313,725	1,066,667	1,380,392
High	0.66		23,767	80,808	104,575

Table A10: Simple Model for Through-Delta Expansion - part 2

Effects of Future Pumping Changes											
											Number Fish Entering Delta
Assume 10,000 fish in expanded salvage											From Sacramento River
%increase	Arrive at screen			Low Survival - 5%			High Survival - 66%				
	Initial	Future	Change	Initial	Future	Change	Initial	Future	Change		
3%	15,686	16,157	471	313,720	323,132	9,412	23,767	24,480	713		
5%	15,686	16,470	784	313,720	329,406	15,686	23,767	24,955	1,188		
10%	15,686	17,255	1,569	313,720	345,092	31,372	23,767	26,143	2,377		
%increase	Arrive at screen			Low Survival - 5%			High Survival - 66%				
	Initial	Future	Change	Initial	Future	Change	Initial	Future	Change		
3%	53,333	54,933	1,600	1,066,667	1,098,667	32,000	80,808	83,232	2,424		
5%	53,333	56,000	2,667	1,066,667	1,120,000	53,333	80,808	84,848	4,040		
10%	53,333	58,667	5,333	1,066,667	1,173,333	106,667	80,808	88,889	8,081		

This table represents a Simple Model for the expansion of the number of fish arriving at the export facilities utilizing a typical range of pumping increases observed in the CALSIM II modeling for studies 4a and 5a. The through-Delta expansion is then calculated for the values derived in the future pumping conditions. Finally, the changes in the number of additional fish needed to support the different percentages of pumping rate increases are determined from the expanded values.

Table A11: CALSIM II Modeling for Studies 4 and 5 at the SWP

	Wet											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	4732	5374	6384	6866	6415	5314	4416	4470	5486	5589	6388	6522
Today b(2) (2003)	4706	5397	6401	6866	6407	5317	4420	4460	5474	5601	6352	6522
Today EWA (2003)	5127	5570	6010	6647	6311	6667	3416	2288	5025	5367	6795	6815
Future SDIP (2030) Study 4	5239	5815	7421	7396	6731	6352	5088	4849	5769	6055	5975	7066
Future EWA (2030) Study 5	5707	5659	7260	7212	6527	7246	3819	2458	5788	6055	6874	7099
	Above Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	4039	4516	6088	7703	7147	5832	4226	3740	4455	5601	4791	5831
Today b(2) (2003)	3973	4520	6090	7677	7159	5844	4231	3739	4593	5544	4792	5772
Today EWA (2003)	4088	4325	5936	7211	6989	6342	2976	2004	4186	6344	6158	5646
Future SDIP (2030) Study 4	4424	4772	5908	7588	7496	7044	4673	3876	4744	6110	4890	5632
Future EWA (2030) Study 5	4637	4860	6164	7409	7009	7366	3284	1868	4425	7139	5422	5584
	Below Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	4506	4158	5514	6497	5883	5468	3697	2918	3991	5387	5822	5550
Today b(2) (2003)	4415	4171	5468	6471	5897	5572	3691	2917	3996	5390	5805	5516
Today EWA (2003)	4852	4065	5105	6261	6247	5530	2547	1588	3338	6446	6784	5243
Future SDIP (2030) Study 4	4403	4421	6244	7042	6189	6134	3777	3311	3972	5823	6061	5171
Future EWA (2030) Study 5	4672	4303	5882	6637	6261	5887	2596	1354	3638	7030	6983	5046
	Dry											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	3935	3189	5143	5631	5049	4144	2242	1996	2617	5104	4280	4349
Today b(2) (2003)	3884	3170	5100	5646	5026	4191	2302	1831	2791	4833	4269	4312
Today EWA (2003)	4170	2999	4923	5141	5070	4153	1833	1013	2421	6376	4745	4618
Future SDIP (2030) Study 4	4030	3297	5519	6114	5307	4432	2337	1878	2581	4986	4515	4109
Future EWA (2030) Study 5	4255	3245	5648	5695	5361	4438	1874	930	2492	6870	4422	4122
	Critical											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	2928	2235	4001	4665	3049	2384	1019	948	568	1018	826	1791
Today b(2) (2003)	2914	2277	4004	4667	3144	2365	992	824	653	970	919	1935
Today EWA (2003)	3190	2258	4016	4167	3390	2297	939	605	783	2185	2523	1952
Future SDIP (2030) Study 4	3223	2166	4234	4942	3491	2619	993	921	710	894	804	1861
Future EWA (2030) Study 5	3476	2195	3828	4336	3463	2476	935	529	614	2173	2733	1949
	Average											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	4139	4053	5534	6300	5595	4708	3248	2979	3663	4745	4738	5031
Today b(2) (2003)	4091	4065	5521	6295	5607	4738	3257	2920	3731	4674	4736	5030
Today EWA (2003)	4421	4027	5278	5937	5671	5174	2456	1572	3354	5451	5596	5116
Future SDIP (2030) Study 4	4386	4282	6073	6694	5920	5409	3539	3154	3796	4991	4727	5046
Future EWA (2030) Study 5	4694	4219	5957	6351	5815	5646	2634	1527	3658	5983	5516	5041

Table A11: Note

CALSIM II modeling values for the studies 1 through 3 and studies 4 and 5 at the SWP export facilities. Values are in cubic feet per second (cfs). The CALSIM II modeling runs used data from 72 years of historical hydrological records. Modeling runs are divided into hydrological year types and are an average of those years falling into a particular water year classification.

Table A12: Percentage Changes in Pumping Rates at the SWP for Studies 4 and 5

	Wet											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)	11.33	7.75	15.94	7.72	5.07	19.48	15.12	8.72	5.39	8.10	(5.93)	8.35
today vs future with EWA (3 v 5)	11.31	1.60	20.81	8.50	3.42	8.68	11.78	7.45	15.18	12.81	1.15	4.16
1997 vs future with EWA (1 v 5)	20.61	5.32	13.72	5.04	1.74	36.35	(13.52)	(45.00)	5.50	8.34	7.60	8.85
	Above Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)	11.35	5.58	(2.99)	(1.16)	4.71	20.55	10.45	3.66	3.30	10.21	2.04	(2.42)
today vs future with EWA (3 v 5)	13.43	12.38	3.84	2.75	0.30	16.16	10.35	(6.76)	5.70	12.54	(11.95)	(1.11)
1997 vs future with EWA (1 v 5)	14.81	7.63	1.25	(3.82)	(1.93)	26.32	(22.28)	(50.05)	(0.67)	27.47	13.17	(4.25)
	Below Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)	(0.28)	5.99	14.19	8.82	4.94	10.08	2.33	13.49	(0.60)	8.04	4.40	(6.25)
today vs future with EWA (3 v 5)	(3.72)	5.85	15.23	5.99	0.23	6.44	1.91	(14.71)	8.99	9.06	2.94	(3.76)
1997 vs future with EWA (1 v 5)	3.68	3.49	6.68	2.14	6.43	7.65	(29.78)	(53.59)	(8.85)	30.51	19.95	(9.09)
	Dry											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)	3.75	3.99	8.23	8.29	5.59	5.75	1.54	2.56	(7.51)	3.15	5.76	(4.70)
today vs future with EWA (3 v 5)	2.04	8.22	14.72	10.77	5.73	6.86	2.28	(8.20)	2.91	7.76	(6.81)	(10.74)
1997 vs future with EWA (1 v 5)	8.14	1.77	9.83	1.13	6.18	7.09	(16.40)	(53.41)	(4.78)	34.60	3.30	(5.23)
	Critical											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)	10.57	(4.85)	5.74	5.88	11.04	10.73	0.10	11.76	8.78	(7.91)	(12.55)	(3.81)
today vs future with EWA (3 v 5)	8.95	(2.77)	(4.69)	4.07	2.16	7.77	(0.35)	(12.62)	(21.50)	(0.52)	8.33	(0.19)
1997 vs future with EWA (1 v 5)	18.73	(1.76)	(4.33)	(7.05)	13.57	3.86	(8.24)	(44.20)	8.13	113.59	231.02	8.83
	Average											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)	7.21	5.33	9.99	6.34	5.59	14.15	8.63	8.02	1.74	6.79	(0.20)	0.32
today vs future with EWA (3 v 5)	6.17	4.76	12.88	6.98	2.54	9.10	7.27	(2.84)	9.06	9.77	(1.44)	(1.47)
1997 vs future with EWA (1 v 5)	13.40	4.09	7.65	0.81	3.92	19.91	(18.89)	(48.73)	(0.15)	26.09	16.42	0.19

Table A12:

Percentage changes in the pumping rates between study 4 and 2, and study 5 and studies 1 and 3 at the SWP export facilities. Numbers in parenthesis indicate that the future condition is less than the current baseline condition.

Table A13: CALSIM II Modeling for Studies 4 and 5 at the CVP

	Wet											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	4087	4208	4076	3968	3938	3651	2883	2254	2867	4374	4650	4479
Today b(2) (2003)	4081	4211	4091	3963	3888	3661	2928	2254	2884	4376	4650	4479
Today EWA (2003)	4123	4027	3627	3342	3257	3754	2785	2083	2843	4419	4654	4465
Future SDIP (2030) Study 4	4215	4354	4371	4035	3813	3449	2710	2247	2871	4431	4690	4696
Future EWA (2030) Study 5	4111	4262	3659	3369	3416	3668	2782	2074	2873	4388	4691	4689
	Above Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	3633	3538	3908	4224	4240	3973	2652	1859	2833	4576	4637	4454
Today b(2) (2003)	3667	3551	3953	4219	3989	3901	2652	1767	2807	4578	4638	4455
Today EWA (2003)	3740	3680	3575	3629	3597	4013	2640	1538	2868	4681	4608	4417
Future SDIP (2030) Study 4	3810	3798	4007	4217	4287	3483	2665	2023	2936	4609	4401	4518
Future EWA (2030) Study 5	3630	3712	3616	3935	3787	3668	2651	1551	2914	4532	4210	4460
	Below Normal											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	3782	3905	4050	4226	3948	3771	2284	1657	2861	4259	4496	4340
Today b(2) (2003)	3741	3900	3976	4225	3955	3552	2213	1637	2862	4089	4495	4342
Today EWA (2003)	3771	3788	3608	3998	3800	3374	2184	1259	2862	4094	4369	4118
Future SDIP (2030) Study 4	3779	4007	4033	4452	3802	3215	2164	1555	2865	3911	4346	4169
Future EWA (2030) Study 5	3770	3891	3688	4026	4025	3172	2147	1076	2871	3910	4282	4080
	Dry											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	3764	3563	3993	4222	3942	3509	1888	1558	2561	3657	3647	3882
Today b(2) (2003)	3709	3536	3994	4222	3940	3246	1899	1515	2509	3394	3330	3955
Today EWA (2003)	3748	3365	3573	3552	3796	3144	1921	1053	2447	3341	3053	3893
Future SDIP (2030) Study 4	3784	3423	4200	4275	3853	3187	1985	1470	2330	2926	2639	3782
Future EWA (2030) Study 5	3805	3337	3705	3765	4080	3216	1856	1046	2180	2951	2277	3702
	Critical											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	3479	3049	2824	3208	2920	1759	1034	1244	1220	1087	1425	2775
Today b(2) (2003)	3420	3069	2682	3194	2901	1794	946	1236	1166	1089	1353	2661
Today EWA (2003)	3469	2947	2648	2862	2804	1743	984	889	1093	941	1244	2634
Future SDIP (2030) Study 4	3347	2821	3056	3458	2969	1950	1030	1093	924	837	977	2453
Future EWA (2030) Study 5	3229	2735	2578	3088	2886	1830	1124	832	959	972	938	2481
	Average											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
D1641 with b(2) (1997)	3800	3736	3838	3994	3786	3399	2231	1774	2542	3718	3659	4056
Today b(2) (2003)	3774	3737	3813	3990	3776	3296	2219	1747	2523	3628	3778	4055
Today EWA (2003)	3818	3606	3455	3463	3460	3273	2181	1436	2495	3608	3672	3981
Future SDIP (2030) Study 4	3846	3768	4016	4106	3757	3121	2180	1732	2461	3467	3531	3994
Future EWA (2030) Study 5	3775	3675	3504	3620	3654	3276	2181	1389	2432	3474	3406	3953

Table A13: Note

CALSIM II modeling values for the studies 1 through 3 and studies 4 and 5 at the CVP export facilities. Values are in cubic feet per second (cfs). The CALSIM II modeling runs used data from 72 years of historical hydrological records. Modeling runs are divided into hydrological year types and are an average of those years falling into a particular water year classification.

Table A14: Percentage Pumping Changes at the CVP for Studies 4 and 5

		Wet											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)		3.3	3.4	6.8	1.8	(1.9)	(5.8)	(7.4)	(0.3)	(0.4)	1.3	0.9	2.6
today vs future with EWA (3 v 5)		(0.3)	5.8	0.9	0.8	4.9	3.0	(0.1)	(0.5)	1.0	(0.7)	0.8	3.0
1997 vs future with EWA (1 v 5)		0.6	1.3	(10.2)	(15.1)	(13.3)	6.0	(3.5)	(8.0)	0.2	0.3	0.9	2.5
		Above Normal											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)		3.9	6.9	1.4	(0.1)	7.5	(10.7)	0.5	14.5	4.6	(1.5)	(3.0)	1.4
today vs future with EWA (3 v 5)		(2.9)	3.7	1.1	8.4	5.3	(3.6)	0.4	0.8	1.6	(1.1)	(6.6)	1.0
1997 vs future with EWA (1 v 5)		(0.1)	4.9	(7.5)	(6.8)	(10.7)	(2.6)	(0.0)	(16.6)	2.8	(1.0)	(7.2)	0.1
		Below Normal											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)		1.0	2.7	1.4	5.4	(3.9)	(9.5)	(2.2)	(5.0)	0.1	(4.4)	(3.3)	(4.0)
today vs future with EWA (3 v 5)		(0.0)	2.7	2.2	3.3	5.9	(6.0)	(1.7)	(14.5)	0.3	(4.5)	(2.0)	(0.9)
1997 vs future with EWA (1 v 5)		(0.3)	(0.4)	(8.9)	(4.7)	4.6	(15.9)	(6.0)	(35.0)	0.4	(8.2)	(4.8)	(6.0)
		Dry											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)		2.0	(3.2)	5.2	1.2	(2.2)	(1.8)	4.5	(3.0)	(7.1)	(13.8)	(20.8)	(4.4)
today vs future with EWA (3 v 5)		1.5	(0.8)	3.7	6.0	7.5	2.3	(3.4)	(0.7)	(10.9)	(11.7)	(25.4)	(4.9)
1997 vs future with EWA (1 v 5)		1.1	(6.3)	(7.2)	(10.8)	6.2	(8.4)	(1.7)	(32.9)	(14.9)	(19.3)	(37.6)	(4.6)
		Critical											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)		(2.2)	(8.7)	13.9	8.3	2.3	8.7	8.8	(11.6)	(20.7)	(23.1)	(27.8)	(7.8)
today vs future with EWA (3 v 5)		(6.9)	(7.2)	(2.7)	7.9	3.3	4.9	14.3	(6.4)	(12.3)	3.2	(24.6)	(5.8)
1997 vs future with EWA (1 v 5)		(7.2)	(10.3)	(8.7)	(3.7)	(0.8)	4.0	8.7	(33.1)	(21.4)	(10.6)	(34.2)	(10.6)
		Average											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
today vs future no EWA (2 v 4)		1.9	0.8	5.3	2.9	(0.5)	(5.3)	(1.8)	(0.8)	(2.5)	(4.7)	(6.5)	(1.5)
today vs future with EWA (3 v 5)		(1.1)	1.9	1.4	4.5	5.6	0.1	0.0	(3.3)	(2.5)	(3.7)	(7.3)	(0.7)
1997 vs future with EWA (1 v 5)		(0.7)	(1.6)	(8.7)	(9.4)	(3.5)	(3.6)	(2.2)	(21.7)	(4.3)	(6.6)	(11.8)	(2.5)

Table A14: Note

Percentage changes in the pumping rates between study 4 and 2, and study 5 and studies 1 and 3 at the CVP export facilities. Numbers in parenthesis indicate that the future condition is less than the current baseline condition.

Table A15: Salvage Projections for winter-run Chinook salmon under Studies 4 and 5

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1993														
Salvage Number			516	1470	1125	344	83	0	0				3538	AN
today vs future no EWA (2 v 4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v 5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v 5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v 4)			(7)	(11)	64	28	5	0	0				79	2
today vs future with EWA (3 v 5)			15	68	22	29	5	0	0				139	4
1997 vs future with EWA (1 v 5)			(11)	(72)	(58)	50	(11)	0	0				(103)	(3)
1994														
Salvage Number			238	215	2941	1625	432	6	0				5457	C
today vs future no EWA (2 v 4)	4	(7)	9	7	7	10	4	(2)	(10)	(16)	(22)	(5)		
today vs future with EWA (3 v 5)	1	(5)	(4)	6	3	7	7	(9)	(16)	1	(3)	(3)		
1997 vs future with EWA (1 v 5)	5	(7)	(6)	(6)	7	4	0	(38)	(12)	49	63	(3)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v 4)			22	15	202	160	19	(0)	0				417	8
today vs future with EWA (3 v 5)			(9)	12	79	106	31	(1)	0				218	4
1997 vs future with EWA (1 v 5)			(15)	(12)	192	64	1	(2)	0				228	4
1995														
Salvage Number			36	4082	268	34	394	16	0				4820	W
today vs future no EWA (2 v 4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v 5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v 5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v 4)			4	227	6	3	24	1	0				265	6
today vs future with EWA (3 v 5)			5	242	11	2	25	1	0				285	6
1997 vs future with EWA (1 v 5)			2	(95)	(11)	8	(37)	(5)	0				(138)	(3)
1996														
Salvage Number			36	3281	366	73	40	12	0				3828	W
today vs future no EWA (2 v 4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v 5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v 5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v 4)			4	182	9	7	2	1	0				206	5
today vs future with EWA (3 v 5)			5	194	15	5	3	0	0				222	6
1997 vs future with EWA (1 v 5)			2	(77)	(15)	17	(4)	(4)	0				(81)	(2)
1997														
Salvage Number			520	1	0	337	23	0	0				881	W
today vs future no EWA (2 v 4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v 5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v 5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v 4)			64	0	0	31	1	0	0				97	11
today vs future with EWA (3 v 5)			69	0	0	22	1	0	0				98	11
1997 vs future with EWA (1 v 5)			23	(0)	0	81	(2)	0	0				101	12

Table A15: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1998														
Salvage Number			4	400	108	196	12	0	0				720	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v4)			0	22	3	18	1	0	0				44	6
today vs future with EWA (3 v5)			1	24	4	13	1	0	0				42	6
1997 vs future with EWA (1 v5)			0	(9)	(4)	47	(1)	0	0				32	5
1999														
Salvage Number			48	56	85	1108	435	0	0				1732	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v4)			6	3	2	102	27	0	0				139	8
today vs future with EWA (3 v5)			6	3	3	74	28	0	0				115	7
1997 vs future with EWA (1 v5)			2	(1)	(3)	266	(42)	0	0				221	13
2000														
Salvage Number			128	975	1143	590	166	0	0				3002	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v4)			(2)	(7)	65	47	11	0	0				114	4
today vs future with EWA (3 v5)			4	45	23	50	9	0	0				131	4
1997 vs future with EWA (1 v5)			(3)	(48)	(59)	86	(23)	0	0				(46)	(2)
2001														
Salvage Number			504	509	2261	3861	138	0	0				7273	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA (3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA (1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v4)			35	27	49	95	4	0	0				209	3
today vs future with EWA (3 v5)			51	45	146	189	(1)	0	0				430	6
1997 vs future with EWA (1 v5)			12	(20)	140	0	(13)	0	0				119	2
2002														
Salvage Number			850	1623	379	1057	138	0	0				4047	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA (3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA (1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v4)			58	86	8	26	4	0	0				182	5
today vs future with EWA (3 v5)			86	143	25	52	(1)	0	0				304	8
1997 vs future with EWA (1 v5)			20	(65)	23	0	(13)	0	0				(34)	(1)
2003														
Salvage Number			210	6830	1120	1128	64	24	12				9388	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA (2 v4)			(3)	(52)	64	91	4	2	0				106	1
today vs future with EWA (3 v5)			6	318	22	96	4	(1)	0				445	5
1997 vs future with EWA (1 v5)			(5)	(334)	(38)	165	(9)	(9)	0				(250)	(3)

Table A15: Note

This table presents the combined salvage numbers for winter-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the salvage numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in salvage numbers.

Table A16: Projected losses for winter-run Chinook salmon under Studies 4 and 5

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1993														
Salmon Loss			1707	6225	3802	580	185	0	0				12499	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA(1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			(22)	(48)	217	47	12	0	0	0	0	0	206	2
today vs future with EWA (3 v5)			48	290	76	49	11	0	0	0	0	0	473	4
1997 vs future with EWA(1 v5)			(37)	(304)	(197)	85	(25)	0	0	0	0	0	(479)	(4)
1994														
Salmon Loss			792	490	2460	2155	399	33					6329	C
today vs future no EWA (2 v4)	4	(7)	9	7	7	10	4	(2)	(10)	(16)	(22)	(6)		
today vs future with EWA (3 v5)	1	(5)	(4)	6	3	7	7	(9)	(16)	1	(3)	(3)		
1997 vs future with EWA(1 v5)	5	(7)	(6)	(6)	7	4	0	(38)	(12)	49	63	(3)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			72	34	169	212	17	(1)	0	0	0	0	503	8
today vs future with EWA (3 v5)			(31)	28	66	141	28	(3)	0	0	0	0	229	4
1997 vs future with EWA(1 v5)			(49)	(28)	161	85	1	(13)	0	0	0	0	157	2
1995														
Salmon Loss			23	12797	737	64	291	28					13942	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			3	711	18	6	18	2	0	0	0	0	757	5
today vs future with EWA (3 v5)			3	759	29	4	19	1	0	0	0	0	815	6
1997 vs future with EWA(1 v5)			1	(299)	(29)	15	(28)	(9)	0	0	0	0	(348)	(2)
1996														
Salmon Loss			116	11862	1039	330	48	8					13403	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			14	659	25	30	3	0	0	0	0	0	732	5
today vs future with EWA (3 v5)			15	703	41	22	3	0	0	0	0	0	785	6
1997 vs future with EWA(1 v5)			5	(277)	(41)	79	(5)	(3)	0	0	0	0	(241)	(2)
1997														
Salmon Loss			1638	4		407	107	0					2156	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			203	0	0	37	7	0	0	0	0	0	247	11
today vs future with EWA (3 v5)			218	0	0	27	7	0	0	0	0	0	252	12
1997 vs future with EWA(1 v5)			72	(0)	0	98	(10)	0	0	0	0	0	159	7

Table A16: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1998														
Salmon Loss			19	1009	77	180	9						1293	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			2	56	2	17	1	0	0	0	0	0	77	6
today vs future with EWA (3 v5)			2	60	3	12	1	0	0	0	0	0	78	6
1997 vs future with EWA (1 v5)			1	(24)	(3)	43	(1)	0	0	0	0	0	17	1
1999														
Salmon Loss			31	68	59	2483	1544						4185	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			4	4	1	228	95	0	0	0	0	0	332	8
today vs future with EWA (3 v5)			4	4	2	165	100	0	0	0	0	0	275	7
1997 vs future with EWA (1 v5)			1	(2)	(2)	595	(148)	0	0	0	0	0	446	11
2000														
Salmon Loss			384	2608	3829	1590	248						8659	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			(5)	(20)	218	128	16	0	0	0	0	0	337	4
today vs future with EWA (3 v5)			11	121	76	135	14	0	0	0	0	0	358	4
1997 vs future with EWA (1 v5)			(8)	(127)	(199)	232	(34)	0	0	0	0	0	(137)	(2)
2001														
Salmon Loss			1688	1297	6013	15403	258						24660	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA (3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA (1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			116	68	130	378	7	0	0	0	0	0	700	3
today vs future with EWA (3 v5)			170	115	389	753	(2)	0	0	0	0	0	1426	6
1997 vs future with EWA (1 v5)			40	(52)	372	1	(25)	0	0	0	0	0	337	1
2002														
Salmon Loss			2500	4835	1222	2056	265						10877	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA (3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA (1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			172	255	26	50	8	0	0	0	0	0	512	5
today vs future with EWA (3 v5)			252	427	79	101	(2)	0	0	0	0	0	857	8
1997 vs future with EWA (1 v5)			60	(193)	76	0	(26)	0	0	0	0	0	(83)	(1)
2003														
Salmon Loss			513	20442	3287	3108	198	23	8				27578	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			(7)	(156)	187	250	13	2	0	0	0	0	289	1
today vs future with EWA (3 v5)			14	951	65	264	11	(1)	0	0	0	0	1306	5
1997 vs future with EWA (1 v5)			(11)	(999)	(171)	453	(27)	(9)	0	0	0	0	(764)	(3)

Table A16: Note

This table presents the combined loss numbers for winter-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the loss numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in loss numbers.

Table A17: Projected Salvage for spring-run Chinook salmon under studies 4 and 5

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	August	Sept	Grand Total	year type
1993														
Salvage Number	0	0	0	0	0	68	3308	4337	28	0	0	0	7741	AN
today vs future no EWA(2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA(3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA(1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA(2 v4)			0	0	0	5	219	309	1	0	0	0	534	7
today vs future with EWA(3 v5)			0	0	0	6	188	(151)	1	0	0	0	44	1
1997 vs future with EWA(1 v5)			0	0	0	10	(463)	(1689)	0	0	0	0	(2132)	(28)
1994														
Salvage Number	0	0	230	3394	569	0	0	0	0	0	0	0	4193	C
today vs future no EWA(2 v4)	4	(7)	9	7	7	10	4	(2)	(10)	(16)	(22)	(6)		
today vs future with EWA(3 v5)	1	(5)	(4)	6	3	7	7	(9)	(16)	1	(3)	(3)		
1997 vs future with EWA(1 v5)	5	(7)	(6)	(6)	7	4	0	(38)	(12)	49	63	(3)		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA(2 v4)			21	232	39	0	0	0	0	0	0	0	292	7
today vs future with EWA(3 v5)			(9)	191	15	0	0	0	0	0	0	0	198	5
1997 vs future with EWA(1 v5)			(14)	(194)	37	0	0	0	0	0	0	0	(171)	(4)
1995														
Salvage Number	0	16	336	6848	14415	7453	0	0	0	0	0	0	29068	W
today vs future no EWA(2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA(3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA(2 v4)			42	381	349	684	0	0	0	0	0	0	1465	5
today vs future with EWA(3 v5)			45	406	565	496	0	0	0	0	0	0	1511	5
1997 vs future with EWA(1 v5)			15	(160)	(571)	1787	0	0	0	0	0	0	1070	4
1996														
Salvage Number		0	0	0	28	431	20144	7766	301	0	0	0	28670	W
today vs future no EWA(2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA(3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA(2 v4)			0	0	1	40	1235	441	10	0	0	0	1726	6
today vs future with EWA(3 v5)			0	0	1	29	1300	286	30	0	0	0	1646	6
1997 vs future with EWA(1 v5)			0	0	(1)	103	(1926)	(2532)	11	0	0	0	(4344)	(15)
1997														
Salvage Number	8	0	0	0	21	17015	24657	1589	36	0	0	0	43226	W
today vs future no EWA(2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA(3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salvage													Sum of Change	% change
today vs future no EWA(2 v4)	1	0	0	0	1	1561	1505	90	1	0	0	0	3159	7
today vs future with EWA(3 v5)	0	0	0	0	1	1131	1585	58	4	0	0	0	2780	6
1997 vs future with EWA(1 v5)	1	0	0	0	(1)	4079	(2348)	(518)	1	0	0	0	1214	3

Table A17: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	August	Sept	Grand Total	WY
1998														
Salhage Number	0	0	0	0	12	7288	10508	16207	564	0	0	0	34679	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA(3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salhage													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	0	669	644	920	19	0	0	0	2253	7
today vs future with EWA(3 v5)	0	0	0	0	0	485	678	597	57	0	0	0	1817	5
1997 vs future with EWA(1 v5)	0	0	0	0	(0)	1747	(1005)	(5284)	21	0	0	0	(4521)	(13)
1999														
Salhage Number	0	0	0	0	74	3177	40469	12087	24	0	0	0	55831	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA(3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Salhage													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	2	292	2481	686	1	0	0	0	3461	6
today vs future with EWA(3 v5)	0	0	0	0	3	211	2612	445	2	0	0	0	3273	6
1997 vs future with EWA(1 v5)	0	0	0	0	(3)	762	(3669)	(3940)	1	0	0	0	(7050)	(13)
2000														
Salhage Number	0	0	0	0	136	3082	39347	2156	18	0	0	6	44746	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA(3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA(1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Salhage													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	8	247	2604	154	1	0	0	(0)	3014	7
today vs future with EWA(3 v5)	0	0	0	0	3	262	2234	(75)	1	0	0	(0)	2425	5
1997 vs future with EWA(1 v5)	0	0	0	0	(7)	450	(5393)	(640)	0	0	0	(0)	(5790)	(13)
2001														
Salhage Number	0	0	0	0	0	2696	14128	1380	0	0	0	0	18204	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA(3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA(1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Salhage													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	0	66	409	1	0	0	0	0	476	3
today vs future with EWA(3 v5)	0	0	0	0	0	132	(89)	(60)	0	0	0	0	(17)	(0)
1997 vs future with EWA(1 v5)	0	0	0	0	0	0	(1369)	(613)	0	0	0	0	(1982)	(11)
2002														
Salhage Number				36	12	1121	9043	695	24	0	0		10931	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA(3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA(1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Salhage													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	2	0	28	262	0	(2)	0	0	0	290	3
today vs future with EWA(3 v5)	0	0	0	3	1	55	(57)	(30)	(1)	0	0	0	(29)	(0)
1997 vs future with EWA(1 v5)	0	0	0	(1)	1	0	(876)	(309)	(2)	0	0	0	(1188)	(11)
2003														
Salhage Number	0	0	0	42	24	5208	10382	914	0	0	0	0	16570	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA(3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA(1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Salhage													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	(0)	1	418	687	65	0	0	0	0	1172	7
today vs future with EWA(3 v5)	0	0	0	2	0	443	590	(32)	0	0	0	0	1003	6
1997 vs future with EWA(1 v5)	0	0	0	(2)	(1)	760	(1423)	(356)	0	0	0	0	(1022)	(6)

Table A17: Note

This table presents the combined salvage numbers for spring-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the salvage numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in salvage numbers.

Table A18: Projected Loss numbers for spring-run Chinook salmon under studies 4 and 5

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1993														
Salmon Loss	0	0	0			103	5618	7538	40				13299	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA(1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			0	0	0	8	372	537	2	0	0	0	919	7
today vs future with EWA (3 v5)			0	0	0	9	319	(262)	2	0	0	0	67	1
1997 vs future with EWA(1 v5)			0	0	0	15	(770)	(2936)	0	0	0	0	(3690)	(28)
1994														
Salmon Loss	0	0				201	3407	1140					4748	C
today vs future no EWA (2 v4)	4	(7)	9	7	7	10	4	(2)	(10)	(16)	(22)	(6)		
today vs future with EWA (3 v5)	1	(5)	(4)	6	3	7	7	(9)	(16)	1	(3)	(3)		
1997 vs future with EWA(1 v5)	5	(7)	(6)	(6)	7	4	0	(38)	(12)	49	63	(3)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			0	0	0	20	148	(26)	0	0	0	0	143	3
today vs future with EWA (3 v5)			0	0	0	13	243	(102)	0	0	0	0	154	3
1997 vs future with EWA(1 v5)			0	0	0	8	10	(432)	0	0	0	0	(414)	(9)
1995														
Salmon Loss	0				24	237	4909	18599	15092				38862	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			0	0	1	22	301	1056	510	0	0	0	1899	5
today vs future with EWA (3 v5)			0	0	1	16	317	685	1520	0	0	0	2539	7
1997 vs future with EWA(1 v5)			0	0	(1)	57	(469)	(6063)	556	0	0	0	(5921)	(15)
1996														
Salmon Loss		0	0	0	30	1555	22536	14113	747				39981	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)			0	0	1	143	1382	801	25	0	0	0	2352	6
today vs future with EWA (3 v5)			0	0	1	103	1464	520	75	0	0	0	2154	6
1997 vs future with EWA(1 v5)			0	0	(1)	373	(2155)	(4601)	27	0	0	0	(6356)	(16)
1997														
Salmon Loss	39	0	0	0	45	15226	36773	3191	23	0	0	0	55299	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA(1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	3	0	0	0	1	1397	2254	181	1	0	0	0	3838	7
today vs future with EWA (3 v5)	2	0	0	0	2	1012	2373	117	2	0	0	0	3510	6
1997 vs future with EWA(1 v5)	4	0	0	0	(2)	3650	(3516)	(1040)	1	0	0	0	(903)	(2)

Table A18: continued

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Grand Total	WY
1998														
Salmon Loss	0	0	0		8	4800	8110	14219	1092				28230	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	0	440	497	807	37	0	0	0	1782	6
today vs future with EWA (3 v5)	0	0	0	0	0	319	523	523	110	0	0	0	1476	5
1997 vs future with EWA (1 v5)	0	0	0	0	(0)	1151	(775)	(4635)	40	0	0	0	(4220)	(15)
1999														
Salmon Loss	0	0	0		94	3195	92273	32592	18				128173	W
today vs future no EWA (2 v4)	8	6	12	6	2	9	6	6	3	5	(3)	6		
today vs future with EWA (3 v5)	6	3	13	6	4	7	6	4	10	7	1	4		
1997 vs future with EWA (1 v5)	11	4	4	(2)	(4)	24	(10)	(33)	4	5	5	6		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	2	293	5657	1851	1	0	0	0	7804	6
today vs future with EWA (3 v5)	0	0	0	0	4	212	5955	1200	2	0	0	0	7373	6
1997 vs future with EWA (1 v5)	0	0	0	0	(4)	766	(8822)	(10625)	1	0	0	0	(18684)	(15)
2000														
Salmon Loss	0	0	0		264	7293	84002	7132	84			26	98801	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	15	586	5560	508	3	0	0	(0)	6672	7
today vs future with EWA (3 v5)	0	0	0	0	5	620	4770	(248)	3	0	0	(0)	5151	5
1997 vs future with EWA (1 v5)	0	0	0	0	(14)	1064	(11513)	(2777)	1	0	0	(1)	(13240)	(13)
2001														
Salmon Loss	0	0	0			7435	28756	5204	0				41394	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA (3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA (1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	0	0	182	833	3	0	0	0	0	1018	2
today vs future with EWA (3 v5)	0	0	0	0	0	364	(180)	(228)	0	0	0	0	(45)	(0)
1997 vs future with EWA (1 v5)	0	0	0	0	0	1	(2787)	(2311)	0	0	0	0	(5098)	(12)
2002														
Salmon Loss				21	8	1245	10825	2463	18				14679	D
today vs future no EWA (2 v4)	3	0	7	5	2	2	3	0	(7)	(4)	(6)	(5)		
today vs future with EWA (3 v5)	2	3	10	9	6	5	(1)	(4)	(4)	1	(14)	(8)		
1997 vs future with EWA (1 v5)	5	(3)	2	(4)	6	0	(10)	(44)	(10)	12	(15)	(5)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	1	0	31	313	1	(1)	0	0	0	345	2
today vs future with EWA (3 v5)	0	0	0	2	0	61	(68)	(108)	(1)	0	0	0	(113)	(1)
1997 vs future with EWA (1 v5)	0	0	0	(1)	0	0	(1049)	(1094)	(2)	0	0	0	(2145)	(15)
2003														
Salmon Loss	0	0	0	46	57	12257	27971	2573					42903	AN
today vs future no EWA (2 v4)	8	6	(1)	(1)	6	8	7	7	4	5	(0)	(1)		
today vs future with EWA (3 v5)	6	8	3	5	2	9	6	(3)	4	7	(10)	(0)		
1997 vs future with EWA (1 v5)	8	6	(2)	(5)	(5)	15	(14)	(39)	1	15	3	(2)		
Change in Salmon Loss													Sum of Change	% change
today vs future no EWA (2 v4)	0	0	0	(0)	3	984	1851	183	0	0	0	0	3022	7
today vs future with EWA (3 v5)	0	0	0	2	1	1042	1588	(89)	0	0	0	0	2544	6

Table A18:

This table presents the combined loss numbers for spring-run Chinook salmon recovered at the SWP and CVP export facilities for the eleven year period between 1993 and 2003 according to the Bureau of Reclamation data set. Future changes in the loss numbers are calculated by multiplying the historical salvage value by the percentage of pumping rate change between the baseline value and the future condition in the first block to derive the number of additional fish or reduction in fish projected to occur in the second block. Numbers in parenthesis indicate a reduction in loss numbers.

APPENDIX B - ADDITIONAL FIGURES

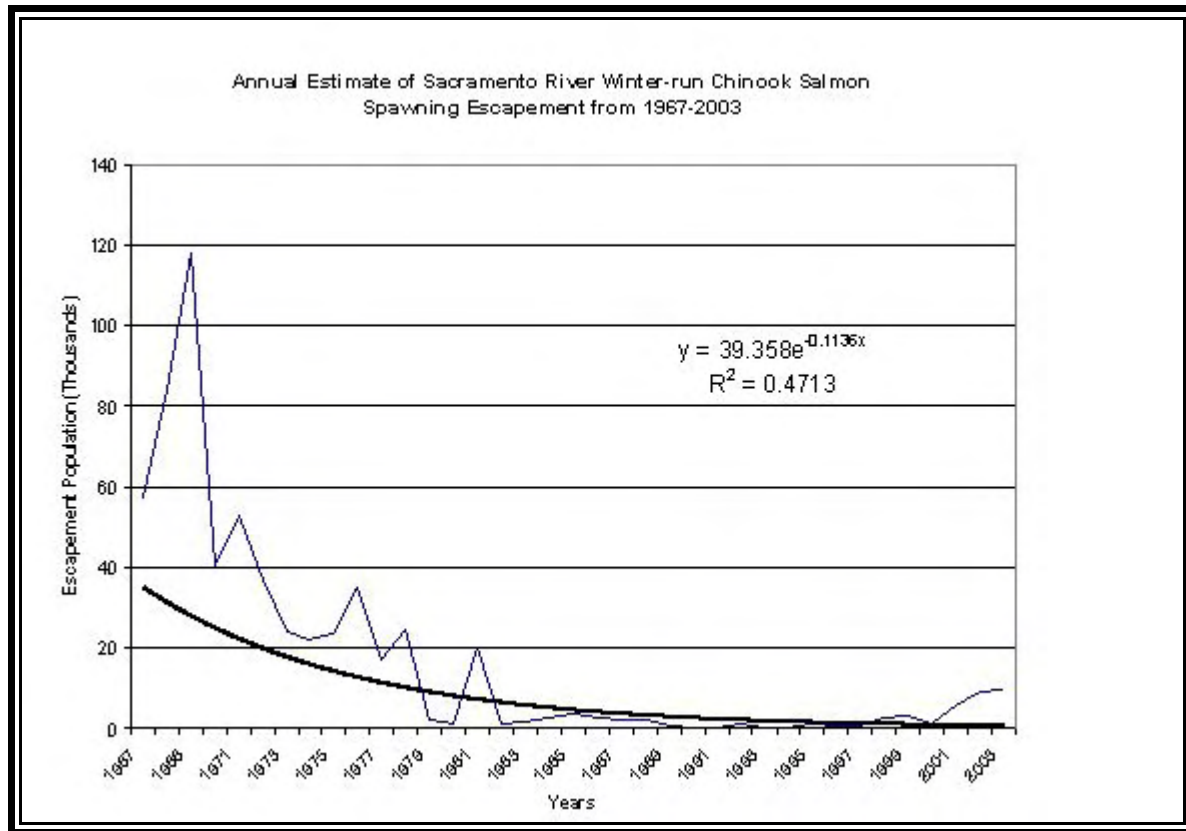


Figure B1:

Annual estimated Sacramento River winter-run Chinook salmon escapement population.

Sources: PFMC 2002, DFG 2004, NOAA Fisheries 1997

Trendline for figure B1 is an exponential function: $Y=39.358 e^{-0.1136x}$, $R^2=0.4713$.

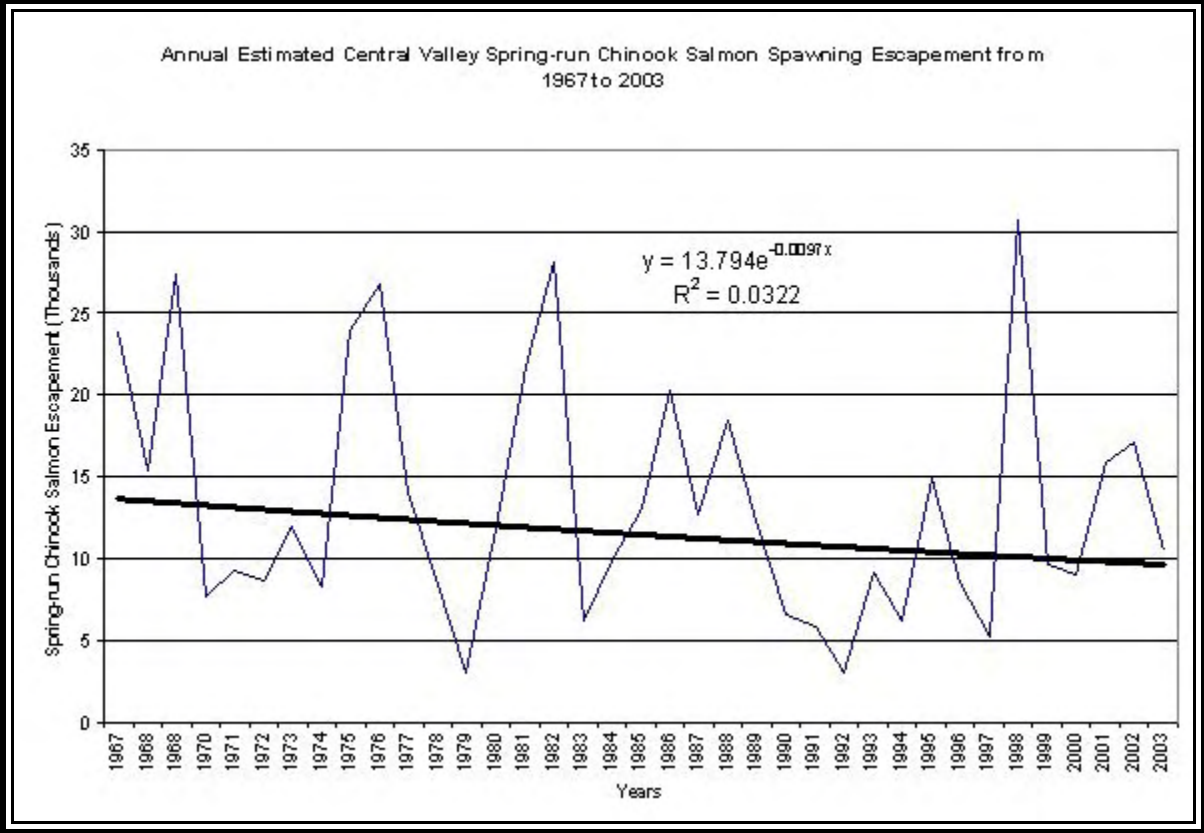
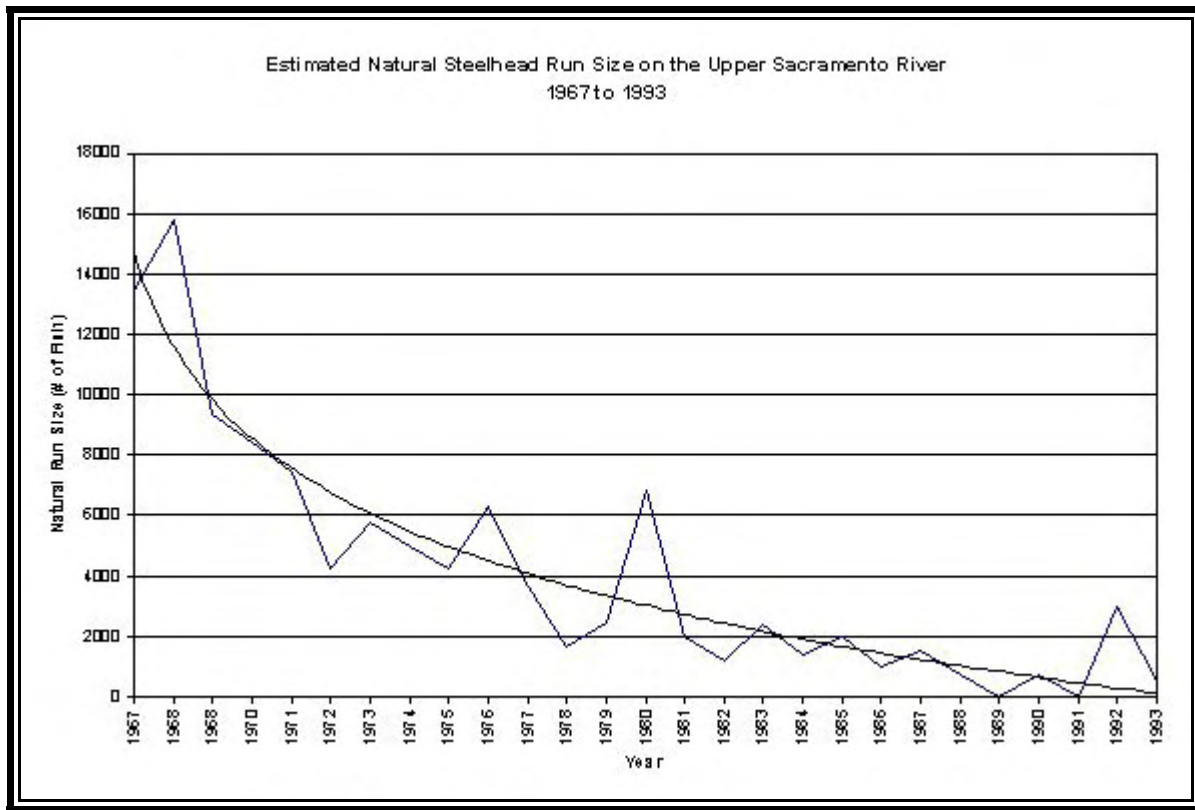


Figure B2:

Annual estimated Central Valley spring-run Chinook salmon escapement population for the Sacramento River watershed for years 1967 through 2003.

Sources: PFMC 2002, DFG 2004, Yoshiyama 1998.

Trendline for figure B2 is an exponential function: $Y=13.794 e^{-0.0097}$, $R^2 = 0.0322$.



Note: Steelhead escapement surveys at RBDD ended in 1993

Figure B3:

Estimated Central Valley natural steelhead escapement population in the upper Sacramento River based on RBDD counts.

Source: McEwan and Jackson 1996.

Trendline for Figure B3 is a logarithmic function: $Y = -4419 \ln(x) + 14690$ $R^2 = 0.8574$

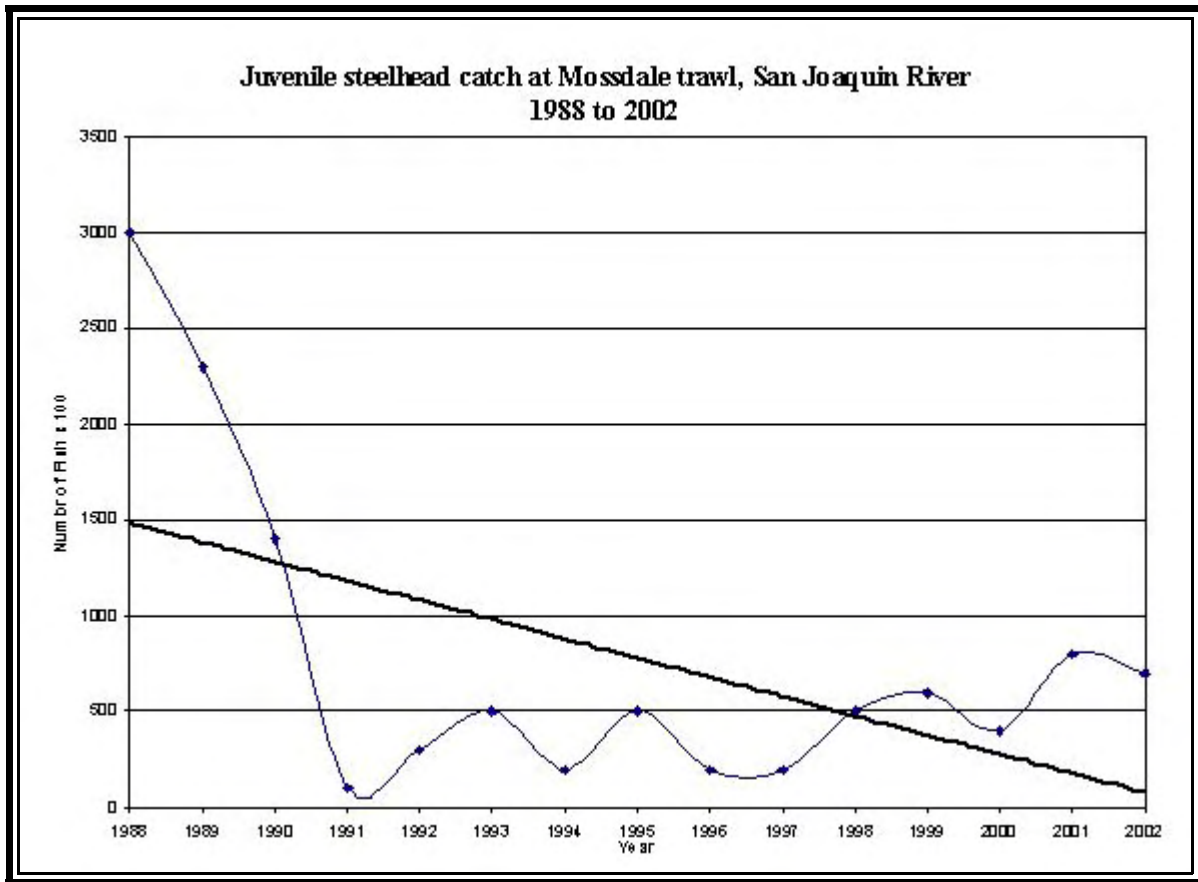


Figure B4:

Estimated number of juvenile Central Valley steelhead derived from the Mossdale trawl surveys on the San Joaquin River from 1988 to 2002.

Source: Marston (DFG), 2003.